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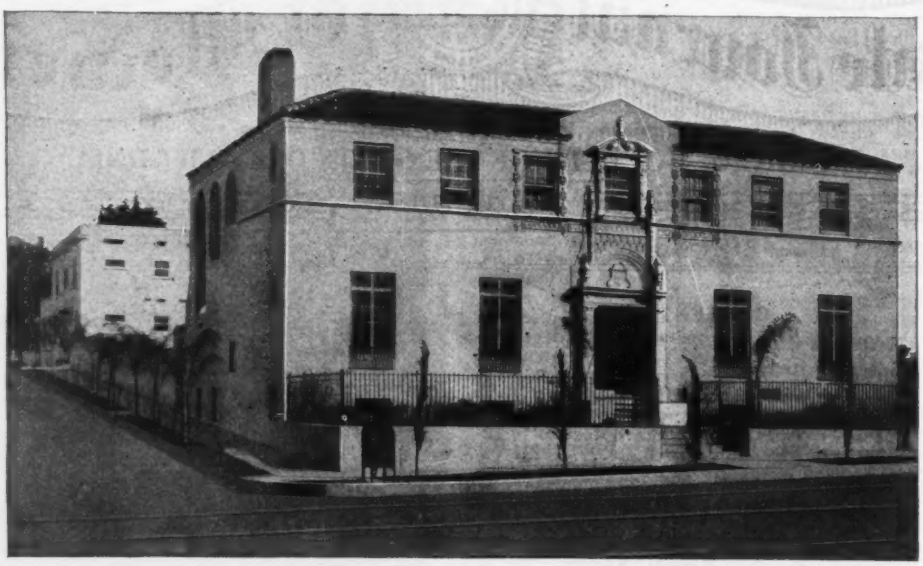

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VOL. XIX JUNE, 1921 No. 6

EDITORIAL POLICY

The editorials appearing in this Journal, as in all other official organs, are intended to reflect the policy and program of the organization. The original article department is to a limited extent interpreted as an Open Forum. The editorial policy toward articles of this character will be very liberal. The responsibility for the language, method of presentation and the statements made in each article rests with the author and not with the State Medical Society. Brief comments and constructive criticism on original articles are invited.

THE SEMI-CENTENNIAL OF THE STATE SOCIETY

The fiftieth annual session of the Medical Society of the State of California, held in San Diego on May 10-12, was notable in many respects. The session was the culmination of the year's administration of the retiring president, Dr. John C. Yates, of San Diego, and the wonderful reception accorded the Society by its president and the San Diego County Society was a matter of frequent comment. The association of three such men as Dr. Yates, the retiring president, Dr. John H. Graves, the incoming president, and Dr. Henry H. Brainerd, the president-elect, is a matter for congratulation. Never were the affairs of the State Society in better hands, and never was the prestige and the influence of the State Society at so high a point. In this connection must be noted, too, the election by the Society of Dr. W. E. Musgrave as full-time secretary, an election fraught with the promise of great progress and of great unification and strengthening of the work of the State Society.

With some seven hundred members in attendance, and the presence of nearly an equal number of ladies, it was a foregone conclusion that the social program of the session would be notable, and such was the case. The entertainment provided by the San Diego County Society was heartily appreciated and enjoyed by the entire convention. The hospitable and cordial program carried through by the ladies of San Diego was one of the most charming and noteworthy features of the week. No effort was spared to please and instruct the doctors and their ladies, and in stating that these efforts were deeply appreciated and will not soon be forgotten, we are but voicing the unanimous conviction of the seven hundred members in attendance.

A visitor from an Eastern state who had attended several state society meetings in various parts of the country during the past year called particular attention to the uniformly high-class programs and snappy discussions heard in all of the sections. The character of these programs will be reflected in the papers to appear in the Journal in the next few months.

The House of Delegates decided to extend the time of the annual session to four days, and the next meeting in May, 1922, was set for the Yosemite. With better than one in five of the membership in attendance this year, at San Diego, and with a growing recognition on the part of everyone of the value and pleasure of these conventions, a record-breaking attendance can be confidently predicted for next year. Detailed reports of the fiftieth annual session, together with the minutes of the House of Delegates, will appear in the July issue of the Journal. Once more attention of authors is called to the fact that all papers presented at the State Society session thereby become the property of the Journal and cannot be published elsewhere without permission from the Journal. Those papers which are not accepted for publication by the Journal will be returned to the writers promptly.

LEAGUE LUNCHEON AT CORONADO

The San Diego Union of May 12, in a lengthy article, describes the League Luncheon as the outstanding feature of the Fiftieth Annual Convention of the State Medical Society. "More than one thousand medical men and their wives packed the dining-room of the Hotel Del Coronado at the meeting of the League for the Conservation of Public Health, and noted speakers vigorously attacked 'quackery' in all its forms, and urged continuous progressive effort on the part of the medical profession to protect the sick and infirm from imposition by incompetent pretentious cultists."

Even to those who have contributed largely to the phenomenal progress of the League and kept in constant touch with its many activities, the remarkable review of the League's performances by Dr. Dudley Smith, the president of the organization, was full of inspiring information. As Dr. Smith said, "There is no one prominently engaged in promoting public welfare work in California today; there is no one worthily holding important public office in this state today that is not aware of the effective and salutary work which the League is doing."

The League is no longer regarded as an experiment, but is recognized as an important fact and factor in the field which it so uniquely fills. Beginning with its first test in 1918, down to the present hour, it has furnished and delivered the goods. In supporting or opposing issues it has not been governed like some transient organizations by what seemed to be at the moment popular. It has taken a positive stand on the side of a question not because it was popular or unpopular, but because it believed it to be right. In every instance the right has prevailed.

Dr. Smith reviewed the successful work of the League against Social Health Insurance in the 1918 campaign, the legislative battles of 1919, the state-wide campaign of 1920, and the recent contests at Sacramento, during which the League decisively defeated the formidable forces arrayed against modern medicine. As Dr. Smith's address will be published in an early issue of the Journal, further comment is unnecessary at this time.

Dr. Smith was followed by Mr. H. F. McInturff, the executive secretary of the Oregon unit of the League for the Conservation of Public Health. The performances of the League in Oregon, as eloquently presented by the executive secretary, demonstrated, as he said, "That the plan of the League is practical and effective, and with personnel of competent caliber can be applied anywhere to solve the present and future problems that confront the medical profession."

Dr. W. E. Musgrave, chairman of the League's section on Advancement of Medical Education and Science, gave an interesting summary of the varied work of the major function of the League—"Hospital Betterment." This important paper will also appear in a future issue of the Journal.

Dr. Donald Jackson Frick gave an impressive address upon "The Civic Responsibility of the Medical Profession," in which he pointed out how futile a thing individual effort is and how present problems can only be met by a united medical profession. The conclusion that he reached was applauded by all—"It is the duty of each and everyone of us to give the best that is in him to the League for the Conservation of Public Health. It is founded on right principles; it is guided by the men of ideals who have forgotten they owned coats or gloves—follow their lead, believe in them and take orders like a soldier. Write or talk direct if you have complaints. Get into the spirit of this great movement, and be assured that you are showing the highest type of patriotism in shouldering the whole of your civic responsibility."

The surprise feature of the League luncheon was the presentation of a beautiful silver fruit and flower bowl to Mr. and Mrs. Hartley F. Peart, by the combined membership of the League and the State Medical Society. Presentation speeches were made by President Dr. John C. Yates, for the Medical Society, and Dr. Dudley Smith, for the League, in which both emphasized the valuable services rendered by Mr. Peart in advancing and protecting the interests of the medical profession.

When Mr. Peart was called to the platform to receive the gift he received an ovation.

The attitude of those who were fortunate enough to be present may be summed up in the concluding words of Dr. Smith, "Only those physicians and surgeons who are ineligible or who are wholly indifferent to the fact that an increasing number of sick people are being treated, or rather maltreated, by the unqualified and by ignorant hostile cultists can consistently refuse to join the League."

STATE LECTURE BUREAU

Attention of county societies is called to the fact that the State Society has prepared a list of lecturers and subjects available for any county society in the state which desires to secure them. Ask the secretary for this list.

PACIFIC COAST MEDICINE

In the medical history of the United States we have been awakened by the great war to a realization that, in the words of Emerson, "We have listened too long to the courtly muses of Europe." "Our day of dependence, our long apprenticeship to the learning of other lands, draws to a close." We have found that American medicine does not need to sit at the feet of foreign instructors. We have demonstrated, and the demonstration is continuing, that originality and progress are characteristic of American medicine. The tradition of European leadership is broken and may never again be re-established.

There is an instinctive feeling among us, on the Pacific Coast, in turn, that our medical thought and interest center on the Atlantic seaboard. To a great extent that is true and will remain true for a considerable time. And yet the time is at hand in which we must recognize that medical science on the Pacific Coast is abreast with

the best and is forging ahead to a position of leadership. Not that we would decry the leadership of the east. But that we would stand on our own scientific feet and no longer say, "All good is from abroad." We must not forget that "Wherever MacDonald sits, there is the head of the table."

Medical science on the Pacific Coast is turning out work of which it need not be ashamed. In quantity and in quality it bears analysis. It is setting a pace in economics and sociology that is second to none in the country. Let us realize that we have something of value here and let us build up a Pacific school of scientific medicine which shall put us at the head of the scientific table.

MINERS' CONSUMPTION

Fibroid phthisis, or miners' consumption, is not infrequently observed in California, either in men engaged at the time in hard rock mining operations, or in those who formerly have followed this trade elsewhere. Until the last few years the condition received but scant attention and was but poorly understood. As the result of an investigation covering three years in the Butte district, and conducted by A. J. Lanza, of the Federal Public Health Service, and Daniel Harrington, of the Bureau of Mines, miners' consumption is now better understood and its hazards more easily avoided.

Lanza and Harrington summarize our knowledge of the disease somewhat as follows: Lung disease among workers in hard-rock mines has been recognized as extremely prevalent. Miners' phthisis is caused by the mechanical irritation of particles of rock dust containing free silica. This dust is dangerous in proportion to the amount of free silica or other hard, sharp, insoluble matter in it. Particles of such dust small enough to enter and remain in the lungs measure less than ten microns in longest dimension. The disease is strictly of mechanical irritative production, and represents an extensive scarring of the lungs, slow in development, and neither contagious nor infectious. The time necessary for the development of the pathologic lesions is dependent on the amount of dust exposure, the length and steadiness of such exposure, and to other concomitant surroundings in the working conditions.

Miners' consumption itself may be the direct cause of disability and death, but more often it predisposes to secondary infections of all sorts, and few escape such infection in the long run. Tuberculosis is not infrequently a sequel, and is more apt to develop where housing and living conditions are favorable to its spread in the soil already prepared. Pneumonia, too, is common. The danger from tuberculosis is always present, and a tuberculous miner is, of course, a menace to his family and associates. If the victim of miners' phthisis leaves his underground employment, the disease tends to recovery if the process is not too advanced, but the hazard from intercurrent tuberculosis or pneumonia is very great even from the first.

Proper protection against the irritative forms of hard-rock dust will prevent this disease. Its treatment naturally consists of removal from the dust hazard to open air occupation, and beyond this is purely symptomatic.

COMMERCIAL VITAMIN PREPARATIONS

It seems necessary to call attention to the considerable number of commercial preparations of vitamins now being advertised, and with reference to which doctors are being extensively circularized. Vitamins are necessary articles of diet. Deprivation of vitamins leads to disturbed physiology and, if continued, to definite disease. At least three types of vitamins are recognized and few, if any, single preparations or foods contain all of them. But we must not forget that vitamins are unstable, illy-defined chemical substances of still doubtful nature and properties, and that their isolation is attended with difficulty, and their standardization is thus far unsatisfactory, to say the least. Moreover, under ordinary conditions an abundant supply of vitamins is secured from a usual dietary, and no specific addition is necessary. Apply all of these facts to the widely-advertised preparations now being exploited, and then see if you are helping the cause of science or the interests of your patient by prescribing indiscriminately substances which are lauded by commercial interests. As was said in these columns recently in regard to commercial claims for emetin preparations, we do not want or relish having our therapeutic science served up to us by drug houses. We want to get our knowledge from unprejudiced scientific sources. We insist that drug houses shall be guarantors of quality alone, and that they shall not be advocates of their preparations to the extent of supplying us with pseudo-scientific literature, which too often leads the unwary doctor astray. Be circumspect in your use of vitamin preparations, and do not allow yourself to be capitalized through a popular fad for the benefit of the seller of doubtful preparations.

DEATH NOTICE INCORRECT

The Journal recently published a death notice which, like one of Mark Twain, was evidently "greatly exaggerated." In the San Diego County Bulletin for March 4, 1921, occurred this paragraph, "Dr. H. P. Wilson . . . has also joined the great majority." It seems, however, that the good doctor is very much alive, and we are delighted to learn that the "great majority" must refer to our friends in San Diego County. May the doctor live to serve for many a long year yet.

THE CALL OF SERVICE

Once more it is a pleasure to quote from an editorial article in the Saturday Evening Post. "None but a fool will decry the importance of religion and education. There are young men whose one idea is to accumulate enough money to enjoy themselves. But as men penetrate further into modern business life they find that it is not simply trading for dollars. Whatever motive leads the young man into business, he is soon caught up in the whirl of the mighty enginery of service, which is just as real if at times it is not wholly conscious. Surely all men recognize that business must be and is being increasingly shot through with the sense of duty, responsibility and service. Its task is too great, too vital, to be animated by any other spirit." These words are just as true of the practice of medicine as ever they were of business. Religion and education are absolute essentials for the real physician, and on them he builds his ideal of service. When any other ideal dominates the profession of medicine, then is it no longer a profession but pure quackery, with all the commercialism that always attends quackery.

DIET AND HEALTH WITH KEY TO THE CALORIES

The fifth edition of the little book under this title bears stalwart witness to the fact that Dr. Lulu Hunt Peters, of Los Angeles, has struck a note of popular demand and scientific value. It has been stated often in these columns that one of the greatest duties and opportunities of the medical profession today was to interpret the great truths of medicine in intelligible terms to the non-medical public. Insofar as this is done, the medical profession is fulfilling its mission. This little book admirably serves to interest, entertain and instruct, and one cannot lay it down until it has been read through. It is the sort of thing we need for our patients; it is full of human interest, clever illustrations, arresting statements, and withal is clothed in sound scientific fact without misstatement or wrong implication. Its definition of "Medical Trust" and "League for Medical Ignorance" are worthy of repetition. It combines in a rare degree scientific accuracy, common sense, and attractive presentation for the lay reader, and we surmise many physicians will find instruction as well as entertainment in its pages. Not the least interesting fact about it is that its already large circulation is largest in Boston, the very home of Eddyism.

NARCOTIC LAW INSTRUCTIONS

Register and pay tax on or before July 1, 1921, and avoid paying penalty.

* * *

Forms will be received by you on the first day of June, with instructions for filling them out, and an addressed envelope to return to Narcotic Division by affixing a 2-cent stamp.

* * *

Your registry number, the period you are to register for, has already been filled in on the forms, so only use the forms sent you.

If you have narcotics on hand or order forms in your possession, or intend to prescribe them during the next year, by all means register in the month of June, and do it in the early part of June, for you can get service and information if you desire it during the first three weeks in June, and avoid the crush and confusion during the last week.

* * *

As this notice is mostly read by doctors, the tax rate is $3 per annum, which also applies to hospitals, sanatoriums. It is called Class 4, and also gives you the privileges of narcotic preparations under Section 6 of the law called Exempt Preparations, a great many which can be purchased without a prescription.

* * *

Stenographers, secretaries and nurses employed in doctors' offices who after June 1, 1921, find a Government addressed envelope with Narcotic Division, Room 107, stamped on the outside, kindly forward immediately to the doctor who employs you if he is away on a vacation, whether or not he has instructed you that he does not wish to be disturbed while away from the office. If you do not send him the forms, and he returns to his office after July 1, 1921, without registering, the excuse of being away on a vacation will not be sufficient to avoid paying penalty.

* * *

He can fill his forms out at whatever destination he is staying and have them sworn to. A suggestion that some one connected with the office make out his inventory if he has any narcotics in the office before forwarding it to him.

* * *

Notaries who call on doctors to register them in many cases have called on the Narcotic Department and received full information how to make out the forms, and in years passed they have brought the forms in correctly with the proper remittance.

* * *

When a notary hands you back your original inventory (Form 713), which you are required to keep, you have his seal and signature on that form as a receipt, and you can hold him liable if he does not turn in your forms and have your tax stamp issued on time.

* * *

The rates that the notaries charge for their services is no affair of this office; we are only making this suggestion for busy doctors who have not the time to call at the Nacotic Division of the Internal Revenue. Stamps will be sent to taxpayers from five to ten days after receipt of forms and remittance.

* * *

Register by all means on or before July 1, 1921, *and avoid penalty.*

More servants wait on man
Than he'll take notice of. In every path,
He treads down that which doth befriend him
When sickness makes him pale and wan.
Oh mighty love! Man is one world, and hath
Another to attend him.

—George Herbert.

Special Articles

ANNUAL HOSPITAL CONFERENCE

To be held in the Palace Hotel, San Francisco, June 24 and 25, 1921

The League for the Conservation of Public Health is inviting three representatives from each hospital in the State to meet in annual conference at the Palace Hotel, June 24 and 25.

The purposes of this convention are to bring together for discussion subjects of mutual interest to representatives of the directing boards, administrative officers and staff members of all hospitals interested in the Hospital Betterment Movement.

Physicians, dentists, physiotherapists, public health nurses, nurses, medical social workers, dietitians, radiographers, laboratory technicians and other persons interested in the Hospital Betterment Movement are especially urged to attend these meetings.

Any information regarding the convention or any assistance relating to hotel reservations or other matters may be obtained by addressing Mr. Celestine J. Sullivan, Convention Manager, at 903 Butler Building, San Francisco, telephone Sutter 1688.

The following provisional program has been arranged:

PROVISIONAL PROGRAM

All Meetings Will Be Held in the Palace Hotel.

1. First Meeting—Friday, June 24, 10 a. m.
   Opening Address—Dr. Dudley Smith, President of the League for the Conservation of Public Health.
   The League and the Medical Profession, by Dr. John H. Graves, President, State Medical Society.
   The Hospital and the Public, by Celestine J. Sullivan, Executive Secretary, League for Conservation of Public Health.
2. Second Meeting—Friday, June 24, 3 p. m.
   a. The Location and Construction of the Hospital.
      Discussion opened by Dr. S. G. Brodrick.
      Discussants: Dr. D. H. Trowbridge, Dr. H. C. Oatman, Dr. Williams.
   b. Government and Management of Hospitals.
      Discussion opened by Dr. G. B. Somers.
      Discussants: Dr. T. J. Cox, Dr. Lyell C. Kinney, Dr. A. S. Keenan.
   c. Principles of Hospital Accounting and Office Management.
      Discussion opened by Mr. J. J. O'Connor.
      Discussants: Miss Alta Bates, Mr. G. W. Curtis.
3. Third Meeting—Friday, June 24, 8 p. m.
   a. Medico-legal Problems of Hospitals.
      Discussion opened by Mr. Hartley F. Peart.
      Discussants: Dr. Enloe, Dr. J. D. Dameron.
   b. Hospital Ethics.
      Discussion opened by Dr. Hamlin.
      Discussants: Sister Mary Malachi, Dr. Hirschberg, Dr. Guy Cochran.
   c. Financing Hospitals.
      Discussion opened by Dr. Rex Brown.
      Discussants: Dr. Van Zwalenburg, Dr. Magan, Dr. Coblentz.
4. Fourth Meeting—Saturday, June 25, 10 a. m.
   a. The School of Nursing and Its Relation to the Hospital.
      Discussion opened by Miss Anna C. Jamme.
      Discussants: Dr. Emma K. Willits, Miss I. N. Rood, Miss Lilla V. Swift, Miss Cole.
   b. Roentgenology and Radium Therapy.
      Discussion opened by Dr. Burnham.
      Discussants: Dr. Rex Duncan, Dr. Laurence Taussig.
   c. Physiotherapy.
      Discussion opened by Dr. E. W. Cleary, Dr. Gilbert Barrett.
      Discussants: Dr. Morton Gibbons, Dr. Langnecker, Miss Hazel Furchgott.
   d. Pathology and Clinical Laboratories.
      Discussion opened by Dr. Walter Brem.
      Discussant: Dr. Wm. Ophuls.
5. Fifth Meeting—Saturday, June 25, 12:30, luncheon ($1 per plate).
   Speakers to be announced later.
6. Sixth Meeting—Saturday, June 25, 3 p. m.
   a. Clinical Records.
      Discussion opened by Dr. Dudley Fulton.
      Discussant: Dr. Percy T. Phillips.
   b. Staff Organization and Functions.
      Discussion opened by Dr. Buteau, Dr. John Gallwey.
      Discussants: Dr. Daniel Crosby, Dr. Frank Nuzum.
   c. The Clinic—Its Relation to the Hospital, the Profession and the Public.
      Discussion opened by Dr. A. C. Reed.
   d. Business Meeting.
      Dr. Charles D. McGettigan, Chairman Executive Committee, Presiding.

MEDICAL ASPECTS OF VISCEROPTOSIS

By GEORGE E. EBRIGHT, M. D., Assistant Professor of Clinical Medicine, University of California Medical School.

Visceroptosis is a pathological condition and is not to be considered in any sense a disease entity. By ptosis is meant a downward displacement of an organ. One or several or all of the viscera may be affected by this condition. As a general rule it is safe to say that visceroptosis is secondary to some primary pathology. It is conveniently classified as hereditary and acquired. Just as an individual may be born with a deficient mental capital, so from birth others are predisposed to a relaxed condition of the abdominal content. It is not difficult to recognize the type, but it is equally important for the patient's future well-being that an early recognition of this tendency be made. Stigmata of degeneration are usually concomitant evidences, and especially to be recognized is a tendency to general muscular athenia or atony as effectively seen, for example in the eye muscles, general circulation, the somatic system, as in the intestinal tract. There is a general constitutional predisposition involving practically

all of the smooth muscles. Such patients have a more or less characteristic habitus—long, flat thorax, unattached ninth and tenth ribs, unstable or relaxed vaso-motor system, low blood pressure, and in general present a picture of the antithesis of an athlete. Exceptionally, the condition occurs in those of apparently good physique.

The acquired type is to be seen among those debilitated by chronic wasting disease, such as syphilis, tuberculosis, alcoholism, chronic intestinal infections, chronic endocervicitis and metritis. It is especially common in women after pregnancy, and in those of improper habits of diet and exercise. Visceroptosis may also be brought about by pressure from above the diaphragm, or by the removal of abdominal pressure as in post-operative states following removal of large tumor masses, ascites and the reduction of great overweight as in emaciation following obesity. One sees frequently visceroptosis in patients who have strenuously reduced overweight by starvation without proper attention to restoration of proper tone of the abdominal and general musculature.

Symptomatology—Just as it is wrong to speak of visceroptosis as a disease so it may be seriously doubted whether or not one may speak of the symptoms of gastroptosis or visceroptosis or coloptosis without the risk of overemphasizing this feature of the patient's condition. The symptoms as a rule are general symptoms, and are those of the condition or conditions which bring about the relaxed abdominal states. It is true, however, that gastric symptoms follow chronic dilatation of the stomach; that Dietl's crisis occurs in movable kidneys; that constipation and chronic intestinal disturbances are present in enteroptosis. It is also especially true that a lowered resistance to general infections is a very prominent characteristic of those suffering from the general condition of relaxed abdominal organs. Whether or not this lowered resistance may be considered due entirely to the lowered state of nutrition brought about by deficient abdominal functions, or whether more properly those who are born with hereditary tendencies in this direction are not also endowed, unfortunately, with a deficient immunity to disease may be very properly considered. Certain it is, however, that inasmuch as impaired alimentary physiology must result in a lowered state of nutrition, it must also result in a diminished protective power of the individual against infections. At any rate, visceroptotics are especially prone to upper respiratory tract diseases—sinus, antrum, post-nasal infections, chronic pharyngitis, tonsilitis, pyorrhea, tooth abscesses, tubercular adenitis, bronchitis, pulmonary tuberculosis, gall-bladder infections, chronic enteritis, colitis, chronic appendicitis, specially that form associated with a tendency to acquired bands of adhesions from traction of the elongated pelvic or iliac colon, the cæcum, ascending colon resulting in acquired bands of adhesions as described by Lane.

Treatment—Under certain and limited conditions, surgical treatment becomes a part of the treatment of visceroptosis, but there is no doubt that the value of surgery in this connection rests nearly entirely in attention to causative factors. For example, in a woman suffering from chronic endocervicitis, whose general state of nutrition is interfered with, who is thin, undernourished, a chronic semi-invalid, and whose condition of relaxed abdominal organs was due to very definite pathology in the pelvis, such a person is usually cured by surgery, directed, however, only to the improvement of the uterine condition. Again, a woman of thirty was sent to California for pulmonary tuberculosis. She endeavored to mend her health for two years, all the while suffering from recurrent fever, headaches, indigestion and pronounced emaciation associated with a very relaxed condition of all of her abdominal organs. Upon examination at the end of this time she was found to be suffering from chronic suppurating ethmoiditis; was operated upon for that. Her general state of nutrition, of course, rapidly improved, and her visceroptosis was cured. So much to indicate the necessity for the removal of the debilitating cause and the upbuilding of the patient's general health. A much more difficult problem lies in the treatment of those patients whose habitus predisposes them by heredity to this condition. The logical treatment of such individuals should have been instituted several generations back. In a given case, of course, that is impossible, but nevertheless the prevention of this class of the disease as a type means all that is comprised in the word "eugenics." For an individual himself, it means intelligent care of the weak child, and especially the guiding of the physical habits of adolescence. A great responsibility rests upon the family physician, and an equally great responsibility rests upon those who have the supervision of children during the school age. In our present civilization our educational systems make very strongly toward mental development at the expense of physical development—long hours of study and short hours of healthful play are bad for any child, but are especially fatal to the future happiness and well-being of the child with deficient musculature and improper bone and joint development, and a tendency to detrimental postures. It is impossible to dilate sufficiently upon this aspect of the subject in the time allotted to this paper.

While the use of supporting bandages properly adjusted is of value in some cases, they are usually unsatisfactory. The most important consideration is the development of the strength and tone of the abdominal muscles as shown by Mankell and Kœnig (Mankell, N. K., and Kœnig, E. C., N. Y. Med Jour., 1916, CIV. 934). If one bears in mind the military setting-up exercises, simple satisfactory directions are readily formulated for the patient's guidance. The object should be to elevate the viscera by habitual and conscious drawing in of the abdominal muscles. This has a tendency to elevate the viscera and to dilate the lower portion of the thoracic

basket. In itself also it constitutes continual exercising of the musculature of the abdominal wall, thereby strengthening it. The disadvantage of supporting bandages is the diametrical opposite of this procedure with a tendency to atrophy the muscles so that, although in some instances bandaging may for a time be used, their employment should be considered as far as possible, temporary.

Massage, hydrotherapy have a twofold usefulness in the treatment of this condition, that is they are useful in improving the patient's general state of nutrition, and have specific application to the abdominal region. The general principles of psychotherapy are to be borne in mind in the treatment of neurotics, among whom this condition is very frequent.

The dietary treatment consists essentially in small frequent meals in order not to overload the stomach and intestines. Fats in many cases are poorly tolerated, but carbohydrates may be used freely. I have found it of advantage to give very little fluid during meals, nor for two hours thereafter.

If the objective is to increase the weight of the patient, as a matter of fact it usually is, that diet of from 3000 to 4500 calories should be used.

Medical treatment—bitters such as nux vomica, gentian, quassia, condurango are of advantage from time to time.

In summing up the treatment, not to dwell too greatly upon any one phase, the objective of building up the patient's general health and general state of nutrition, the increasing of the tone of all the muscles as well as the abdominal muscles, the lifting up thereby of the viscera should be borne clearly in mind to successfully treat the sufferer from visceroptosis.

209 Post Street, San Francisco.

Original Articles

ANOTHER PROBLEM IN SURGERY*

By W. A. CLARK, M. D., Oakland

"Doctor, I should think the medical society would do something to prevent Dr. Blank from operating," or, "Doctor, the medical society should establish some rule allowing only those to operate who are competent." These remarks or something similar in character we have often heard from some patient or friend after detailing to us the condition in which some one of his acquaintance has been left after being subjected to some particularly obnoxious piece of surgery by some incompetent operator.

Our usual answer is that "the medical society cannot do anything." He may then further remark that they should do something.

Remarks such as these are not idle, but are too often based upon a large amount of truth and should spur us to remove the cause of such unfavorable criticism.

If these conditions exist in our profession in its relation to the public, why do they exist? Why has nothing of real present value been done to obviate them? What is being done or can be done for the future? Is there any method which may promise some amelioration of these conditions in the immediate future?

After graduation from Medical College not so many years ago (more for some of us) by application in due form and the payment of a stipulated fee, a license was issued us by the State to practice medicine and surgery. Looking back over the years which have elapsed since we thus became the proud possessors of a diploma and a license, how many will now assert that at that time we were competent to practice the healing art, much less to do surgery. I felt at that time I was, I know now that I was not, and I have since then wondered why my Alma Mater graduated me, unless, possibly to be rid of me.

But fortunately, as in other lines of progress, medical education has advanced, and our colleges and various medical and surgical societies are diligently endeavoring, as far as possible, to better equip the recent graduate so that even if he may not be of a great deal of immediate value to the public whom he seeks to serve, he will at least be safe. This, in spite of the State Legislature.

We are not concerned with the trained surgeon whose training was so ably presented last year to this section by its chairman. This surgeon, by his work and his rugged honesty to himself and his patients, has done more than almost anyone else to establish our own self-respect and gain the esteem of those we are serving.

We are concerned, however, with the untrained operator whom you know and I know exists, and I am afraid is rather numerous.

Pardon me if I draw a picture rather familiar to us all.

This untrained operator in his care of a patient becomes convinced that an operation is necessary or advisable. It is quite likely his consultant will be equally proficient. He is not apt to call a surgeon because he may lose the operation, the stronger and better man being so obvious at the consultation, and, furthermore, such a consultant may possibly advise against operating. He has a book or two on surgery with many clear and simplified illustrations, and he becomes convinced he can easily do it. He may not try very hard to make a surgical diagnosis, but will know more about it as the operation proceeds. This latter circumstance does often happen to the trained surgeon who has found it impossible to make an accurate pre-operative diagnosis, but who is able to handle with comfort to himself and the patient the difficult and unusual conditions revealed.

Now, the condition found at operation may fortunately quite closely resemble the pictures in the book. The work is done in a way we can well imagine and, after the lapse of a considerable length of time, the patient is returned to bed; thanks to the anesthetizer. The patient eventually gets well, and to the operator and not the surgeon is paid the fee.

Soon the patient's relatives and friends begin to talk about the wonderful operation Dr. Blank performed, and what a great surgeon he is. Soon

* Chairman's Address, Surgical Section, Medical Society, State of California, at Coronado, Calif., May, 1921.

another operation is performed, and in like manner he is complimented on all sides in his circle, and he is spoken of as a very clever and rising surgeon. With a few repeated successes he believes it himself. Possibly a fond parent (you can hardly blame him) may in a burst of enthusiasm and paternal pride remark: "He is as good as a Mayo." I have heard it.

Not being familiar with the pathology of the living he sometimes removes the normal, as instanced in our meeting so many of our patients, young women, who have had their ovaries removed with a history which failed to indicate pathology. But there comes an operation, and after the exposure is made things are not as they were in the book, nor has he seen anything like it before. By the distortion of pathology he possibly has cut the facial nerve, or the musculospiral, or one or both ureters or removes an appendix, when he should have removed a stone in the ureter or kidney; or did not know how to control the hemorrhage from a tubal pregnancy; or has removed a breast for cancer and not attempted the radical removal, or during the radical removal has injured the axilary vein. Then after floundering around, as one might say, the patient is returned to bed not improved but probably made worse, and, possibly to die.

Then the question which has occasioned these remarks is asked us by our friend or patient. I do not think this picture is much overdrawn, as you know and I know such an event has happened more than once in our several communities.

The surgeon relies in selling his invaluable services by giving to his patient all the resources of his surgical training, by calling in counsel men who are of equal or better training and of more experience, and also modestly presenting to the various medical societies the results of his efforts. He will not hesitate to record his failures. He very properly expects that his honest consistent efforts will be recognized by his co-workers and the public. We expect the public in times of trouble to exercise care and discrimination in their selection of a surgeon. We know they do not. Any method whereby we may assist them in wisely making this selection seems to me justifiable.

Nothing has been done to prevent the untrained man from doing what he pleases, because there is no law or restriction placed upon him. He is only deterred at times through fear that if he attempts a certain operation, and success not attend him, it may hurt his income.

Our hospitals, through the efforts of the American College of Surgeons, are being raised in their standards, thereby giving a better service to the community. Let us help this movement by endeavoring to provide the hospitals with better and competent surgeons. There are not enough hospitals in some communities. There is not at present any appreciable competition for patients among the hospitals.

It seems that in this favorable situation a solution of the problem which has so long confronted us may be effected by asking the hospital to aid us.

There are many among you who are deservedly looked upon as being among the best of surgeons in your community, and whom the hospital management gladly welcome to their operating pavilions. The managers recognize you as surgeons and do and would give every consideration to your advice and suggestions to increase their professional standards and their standing before the community. They would feel the loss of prestige should you take your work elsewhere. They know that aside from buildings and equipment that their reputation is very largely made and maintained by the professional standing of the surgeons who do their work.

I would suggest that when you return to your work, why not have a confidential talk with the management of the hospital you patronize. Suggest to them that there are probably men using their operating rooms who are not qualified. Go over the list of the men who are operating in that hospital and, together, you will be able to formulate a list of men who are safe to do operative surgery. This need not be so difficult, as they know who are taking three hours to do an ordinary hernia, or two and a half hours for an appendectomy. Their laboratory could soon check up the man who is removing normal structures because he knows not the abnormal, or the one who has a high percentage of curetments. It should not be very difficult to convince the hospital management that it is undesirable to cater to these men.

This list, when complete, would not be that limited coterie of those you would have operate on you or your family, but undoubtedly be of a much higher standard than the one which now enjoys the privileges of their hospital.

To those whom you both consider incompetent, no rooms would be available for their patients. This attitude would undoubtedly cause the creation of sporadically-equipped small hospitals. I do not think that this possible competition would very materially affect the revenues of larger and better institutions.

This suggestion is offered for the want of a better one to obtain results in the very near future. Jealousies will undoubtedly be engendered, but it will, I have no doubt, serve in a measure to give the public more efficient surgical service. Unless some plan of action is instituted I am afraid the same question will be asked us and the same answer returned until we have only the trained surgeon, and the untrained operator ceases to exist.

CHAIRMAN'S ADDRESS*—SECTION ON PEDIATRICS CALIFORNIA STATE MEDICAL SOCIETY

By WILLIAM PALMER LUCAS, M. D., San Francisco

I consider it a great honor to have been asked to be the first chairman of the Section on Pediatrics formed in the State Medical Society of California. I sincerely hope that this section will prosper and grow so that it will represent the broad field which pediatrics covers.

I wish to try to present to you today some

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

idea of the growth of pediatrics and some of the problems which must be faced by those of us who are interested in its proper development. It is only a period of some twenty-five or thirty years since pediatrics was first recognized as a major department in the practice of medicine. Previous to that time, although there were many individuals who might be counted as specialists in the diseases of children and a considerable number of yearly publications on subjects related to pediatrics, yet there were very few of the representative schools in this country that had chairs of pediatrics. The first chair of pediatrics in this country was established by Dr. Abraham Jacobi in the College of Physicians and Surgeons in New York City. This was soon followed by a department of pediatrics in Harvard Medical School under the leadership of Dr. Thomas Morgan Rotch. From that time on the development of pediatrics has been rapid and it is now accepted as one of the fundamental branches in the teaching of medicine in all or most of the Class A medical schools.

Hospitals devoted entirely to the treatment and care of children exist in almost every large city in the United States and within the last fifteen years there is hardly a city of any magnitude that does not contain one or more practicing physicians who limit themselves entirely to this field.

During the early years of the development of pediatrics most of the attention of pediatricians was directed to that special phase of pediatrics having to do with infant feeding, and it is on this basis alone that pediatrics has been mainly developed, not alone in this country but in Europe as well.

It would take too long to try to trace the various phases and schools of infant feeding; suffice it to say that in this country our growth has been a very steady one, developing along lines of intensive and careful clinical study combined with experimental, scientific investigation. If one reviews the medical journals exclusively devoted to the diseases of children one will find that gradually the interest in this field has been shifting from the purely clinical to either a combined clinical and scientific investigation of the various conditions related to infancy and childhood or to the strictly scientific investigations which have today placed our understanding of these conditions on a firm scientific foundation.

There is rapidly growing up in this country a very distinct American school of infant feeding. This is a combination of the so-called German, French and early American schools. The German investigators were undoubtedly the first to point the way in the scientific investigation of the nutritional conditions of infants and children, whereas the French school placed the emphasis on preventive and hygienic care. To France we owe our modern conceptions of infant welfare as to Germany we owe the stimulus for scientific investigation.

With the development of our modern research methods many of the problems relating to nutritional diseases have been cleared up and the real art of infant feeding has been placed on a firm basis. We no longer conceive of our substitute feedings as an attempt to imitate breast milk but rather as an adaptation of the various ingredients to the individual needs of the infant. With infant feeding on this basis our field of endeavor is widening and today the pediatrician is not only called on to feed infants but is also studying the problems of the pre-school age child, the child of school age and the adolescent boy or girl. During these four periods of development and growth different diseases and conditions appear in varying degrees of importance. Formerly we passed over the pre-school age, going from the development of infant hygiene to that of school hygiene, which we have developed to a high degree of efficiency, so that today practically every city has not only its infant welfare stations but also its school hygiene or medical school inspection. All these attempts at preventive medicine started primarily with an effort to care for the sick and to diminish, in the case of school children, the number of contagious and infectious diseases. In both these departments during the last few years our aims have broadened out to the detection of preventible conditions. Now one hears of well-babies' clinics. School hygiene now includes not only the detection of contagious diseases but also conditions related to teeth, nose and throat, heart and the nutritional state of the child. Nutritional classes for undernourished children are being formed throughout this country following a weighing and measuring campaign. A widespread survey of the nutritional condition of the school children of California is being made along these lines this year. This is a marked step in advance and should interest every pediatrician in the state.

The pre-school period is one which has been greatly neglected, though it is one which offers a large field for preventive work. When one considers that from 30 to 60 per cent of children entering school at six or seven years of age are found to have defects of one type or another which were preventible, if recognized during the pre-school period, the importance of this can be appreciated by all of us. As a further extension of our infant welfare stations, in many cities pre-school clinics are being organized to take care of the child from two to six years of age.

On the other hand very little up to date is being done for the adolescent child. During this period there is a very marked increase in growth. A great change in all the developmental processes, both physical and mental, occurs. Few pediatricians have given any attention to this period, and yet it is a field which should engage the earnest interest and attention of all of us, as it is being almost entirely neglected by those who are concerned in the well-being of our childhood population.

It is clear from this short analysis of the field to which pediatricians lay claim that few men can

individually perfect themselves in the management of all these four phases of childhood, and this leads me to the final consideration in the development of the practice of pediatrics to which I wish to call your attention and toward which I believe modern pediatrics is tending, that is the association of a group of specially qualified pediatricians who will together cover these various phases of the field of pediatrics.

Today many groups in medicine are being formed throughout this country. These groups usually consist of an internist, surgical specialists of various types, laboratory, X-ray, and the most successful groups are closely affiliated with some hospital. In some of these groups the pediatrician is included but usually not. The pediatrician is, I believe, the center around which the best group for the care of the whole period of childhood, including adolescence, must develop in the future. With a group of pediatricians in any large city must be associated the specialists who are particularly trained to care for the type of specialty work (surgery, nose and throat, dentistry, etc.) related to these periods of child life. Such a group should not only be interested in the cure of disease, but should also interest itself in the preventive side of infant and child welfare. This should include not only the physical but also the mental, psychological and psychiatric aspects of childhood. Without such a broad and comprehensive vision of the field of pediatrics I feel that our development will not be as healthy and well rounded as it should be. The work of such a group must be carried on in connection with a children's hospital or children's department in a general hospital where all the facilities for the study of special cases are available and where a broad and comprehensive opinion for the management and treatment of cases is possible. It may be satisfactory to treat a large percentage of cases in an office practice, but it is almost impossible to arrive at any well rounded conclusion regarding many of these cases without a period of thorough observation and investigation in a hospital. Such an observation period may cover a few days or several weeks, but during this time every phase of the child's condition should be studied. As a group pediatricians are not only interested in the cure of disease and of abnormal conditions that may lead to disease or to a handicapped life either mental or physical, but must learn to consider a child as a whole—body, mind and soul—and it is for this complex relationship that we are looked to more and more each day, not only to diagnose a diseased condition but to advise and guide as to a child with its parents and guardians through the difficult adjustments that many growing individuals have to make.

THE TREATMENT OF TUBERCULOSIS WITH PARTIGENS (AFTER MUCH-DEYCKE)*

By MAX ROTHSCHILD, M. D., San Francisco

1. What are Partigens?
2. Scientific foundation for the justification of this method of treatment.
   (a) Immunity in tuberculosis in general.
   (b) Biological tests (in regard to the effect of partigens).
   (c) Cellular and humoral immunity.
3. In what respects do partigens differ, regarding their effect, from the tuberculins which are on the market and in use today?
4. Demonstration of diapositives, showing cases treated with partigens.

The problems met in the creation of a treatment which has for its object the cure by immunization are, first: To establish the fact, that the natural defense of the body consists in the production of immune bodies against the infection. Second: Admitting the quantity to be sufficient to overcome the infection, whether they confer immunity for future attacks of the same character. Third: To estimate in what, or by what tissues these immunizing agents are formed. And, fourth: If they can be transferred to another individual and grant immunity.

These facts are well established for certain infections, for example, diphtheria.

In the treatment of tuberculosis they represent the foundations, on which Much of Hamburg based his research work with his so-called "partial antigens."

What are partial antigens, or, as they are called for short, "partigens"?

They are prepared from tubercle bacilli in the following manner: Cultures are carefully broken up with physiological salt solution, containing one-half per cent lactic acid; this suspension is incubated at 65° C., until the acid-fastness of the bacilli has entirely disappeared, and until it is no longer possible, to stain even Much's granula (after the method of Gram-Much).

This disintegrated substance, which is called M. Tb., is filtered.

The water-soluble part, containing the toxin of the tubercle bacilli, and representing the pure tuberculin, is called L.

The residuum, non-soluble in water, is called M. Tb. R. This again is treated with alcohol and ether, and the three end products are called the partial antigens—first, the fatty-acid-lipoids, soluble in alcohol, are called F.; second, the neutral fats and highly molecular fats, soluble in ether, called N.; third, an entirely non-soluble residuum, of a highly albumenous content, containing a large amount of phosphorous and belonging, most probably, to the group of nucleo-proteids, called A.

These are the three partial antigens, and are those that are used for treatment, while the pure tuberculin, L., is not used at all, or only in exceptional cases.

Much and his school teach: "A cure of tubercu-

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losis is impossible without creation of an absolute immunity." The proof of this statement is demonstrated by animal experiments and by the observation of larger groups of people, or whole nations.

Behring was the first to show that an immunization for tuberculosis is possible. He vaccinated cattle with human tubercle bacilli and immunized them (even if only for a certain period) against tuberculosis. This fact has been definitely established. Much and Deycke succeeded in producing an immunization with substances derived from dead tubercle bacilli, which we have never been able to do with the tuberculins, that we have been using up to the present time.

Koch was the first to demonstrate, that an infection with tubercle bacilli protects animals against a second infection. Roemer corroborated Koch's deductions and proved, that the protection thus granted was very stable. To use his own words, "In spite of the fact that an animal might be tuberculous, it is tuberculosis-immune against a second infection." The original infection might at the same time progress or become arrested. This assertion found a great deal of contradiction in the beginning, because the quantitative values and the conditions of time, which are of the greatest importance, were not properly considered by the workers, who checked up these experiments.

The observations of localities, or countries, which have been practically free from tuberculosis, furnish further interesting and valuable data. The fact in itself, that an infection is of long duration, presupposes extensive processes of immunization, and the difference between an acute and a chronic illness is based on the amount of defense and immunity developed. Much, Deycke, Wolff-Eisner, and others proved by their observations in Palestine, Turkey, the Argentines, Africa and other countries, that tuberculosis is not universally always a chronic disease. It can become pandemic, just like any other plague, when it invades a country which has been free from tuberculosis, and whose inhabitants have not been able to acquire previously a certain degree of immunity. The explanation of these facts teaches: People who live in a country, where tuberculosis is a common disease, and who have, therefore, been infected at sometime with tubercle bacilli, are protected against the disease. People who have never been infected, are not protected and succumb. "Contact with tuberculosis leads to immunity, lack of contact means lack of protection."

In practically all cases which are suffering from tuberculosis, antibodies can be demonstrated in the blood. But all attempts to influence tuberculosis with derivatives of blood of animals or human beings, previously treated, have been without results. The reason for this failure is explained in the following way: To be complete for immunizing purposes a serum, or any other blood preparation, must contain all the partial antibodies. This we have not been able to obtain so far, but even if it were possible to prepare such a product, its success would not be assured, as the humoral elements play an insignificant role in immunity against tuberculosis. The cellular immunity has been found to be the most important feature in the immunization process.

Much and Leschke published the following animal experiments:

1. Goats were treated with the three partial antigens. They developed in their blood all the necessary antibodies; at this time the blood-plasma of these goats possessed definite protective qualities for other animals. Later the antibodies disappeared entirely, or partially, and the blood did not provide any further protection to other animals; but the goats themselves proved entirely immune to an inoculation with tubercle bacilli.

2. Blood-plasma of a human being, immune to tuberculosis, was mixed at different times with 5 mg. tubercle bacilli and injected intraperitoneally into guinea pigs. The plasma was previously examined for partial antibodies. If none or only part of these were present in the plasma, the animals died rapidly from extensive tuberculosis. But, if all the partial antibodies were present in the plasma, it showed an astonishing immunizing quality, and the animals did not develop tuberculosis, in spite of the enormous dosages of bacilli.

These experiments furnish a most valuable support for the treatment with partial antigens.

Much and his school proved by the first of these experiments, that the cellular immunity plays a far more important role in tuberculosis than the humoral immunity. They demonstrate the cellular immunity with the help of the skin-test, the humoral by complement fixation.

Their biological tests have thrown an interesting light on the phenomena of cellular immunity. They proved again and again, by graduated intracutaneous reactions and complement fixation tests, that in many cases of tuberculosis no antibodies are found in the serum, in spite of very strong skin reactions. They showed further, that the quantities of antibodies in the serum are most changeable, but that the reactivity of the cells of the skin remains the same over a long period of time.

Much sums up the question of immunity in the following manner:

"Immunity in tuberculosis consists of two kinds: a humoral and a cellular. For the defense against an infection the humoral immunity is absolutely necessary, for the continuation of the condition of immunity only the cellular is needed. If a second infection occurs in a being which has none or only some of the partial antibodies in the blood, but which possesses cellular immunity, the virus is overcome, because the cells dispatch partial antibodies into the blood current. The appearance of the sum of the partial antibodies after a renewed infection of an immunized being has been demonstrated in the human being as well as by animal experiments. After the new infection has again been overcome, a part, or all of the partial antibodies disappear from the blood, and only the cellular immunity persists."

With complement fixation only the humoral immunity is demonstrated; with the oversensitiveness reaction of the skin the humoral as well as

the cellular immunity is proven. For the fight itself the humoral immune-substances are necessary, for the defense the cellular ones are sufficient. The cellular immunity is the most necessary and important one.

These experiments, considerations, and their deductions, which can be here only superficially discussed, present the foundation of the treatment with the partial antigens of Much and his coworker, George Deycke.

A comparison between these partial antigens and the tuberculins, which have been on the market up to the present time, presents interesting and rather important differences.

First of all we have to admit that the tuberculins have not fulfilled our expectations.

While they are entitled to credit under certain conditions and have many enthusiastic advocates, they have an equal number of decided opponents. Their failure as a universal specific is evidenced by the many preparations of tuberculins on the market, extravagant claims being made for all. With any one of the dependable preparations good results might be obtained in certain cases; with none of them can failures be avoided. We all have observed cases in which one form of tuberculin had no effect whatsoever and even seemed to be harmful to the patient, while a different preparation produced good results, and it has been impossible to explain this fact.

Why have the tuberculins, which we have been using up to the present time, failed to meet our expectations?

Principally, on account of their chemical composition. They all contain variable partial antigens, even if only in inconsiderable amounts. Besides the three partial antigens, which are non-soluble in water (albumen, fat-lipoid, neutral fat), they contain a special toxin and an aromatic substance. All these substances possess strongly reacting qualities. The reaction to pure tuberculin, or the pure toxin, is based on oversensitiveness to the toxin and is harmful, as has been proven by Much and his school.

The reaction to the other partial antigens is based on oversensitiveness to immunizing substances and is useful.

The tuberculins now offered on the market, for treatment, contain undetermined amounts of antigens, which makes their use very unscientific and inaccurate, and gives no aid in solving the complex problem of immunity. Normal animals cannot be immunized against tuberculosis by any of these tuberculins. There must either be some substance missing for the purpose of immunization, or it must be present in some combination which cannot be used. Undisintegrated bacillary substances do not produce all antibodies, and least of all those reacting particularly to fats. The normal body is unable to do the necessary work of disintegrating the bacillary substances contained in the old as well as the new tuberculin. Frequently one or the other partial antigen might be present in such a form that it could be used and then, if the system happens to have the other antibodies present for defense, the whole sum of partial antibodies might be formed and the treatment would be successful. This, however, is not the case in the great majority of patients, and would be only a coincidence, should these conditions be present.

In treating tuberculosis with partial antigens, however, all the antigens which are needed for treatment are injected in such a form that the body is able to produce antibodies for each one of them.

A radical difference between the tuberculins and the partigens, lies in the fact that the pure toxin of the bacilli is entirely removed in the treatment with partigens. This accounts for the absence of general reactions, which is so commonly seen when using the ordinary tuberculins, temporarily contraindicating their further use. On the other hand the partigens, being devoid of toxicity, can be used while the patient has febrile periods. A possible temperature of the patient during the treatment is not a result of the use of partigens, but it is due to the disease itself, or of one of its many complications. The correctness of this statement is proven by the fact that in fever cases the temperature frequently becomes normal during the treatment. The partigens can and usually do produce slight focal reactions, not severe ones, but no general reactions or fever. The first indication that the respective patient has reached the maximum dose of partigen is evidenced by a slight local reaction at the site of injection, a slight elevation of temperature following the injection. The only contraindications for the treatment with partigens are pulmonary hemorrhages, and an entirely negative reaction to all the skin tests with the different antigens. In this event other methods will have to be used (non-specific ones) to create first some reactivity in the patient, if this can be established at all.

Another important advantage in favor of the use of partial antigens lies in the fact that we are able to get a good picture of the status of immunity of the patient.

The injections for the demonstration of the status of immunity are made intracutaneously. They are based on the biological law of oversensitiveness. The result of this intracutaneous inoculation indicates which partial antigens should be used in the respective case. If we find, for instance, that the fatty-acid antibodies are missing and the antibodies for the albuminous and neutral-fat group are present, then the patients are treated advantageously with the fatty-acid antigen, F, and so on. With the skin-test we are able to ascertain whether antibodies are present, and, if they are present in large or small quantities, but we cannot determine if they are present in sufficiently large quantities to ward off the attack. In other words, we can measure the defense, but we cannot measure the attack. A patient might have a great many antibodies, and yet the number of these antibodies present would not be sufficient for defense against the infection, should the infection be an exceptionally virulent or massive one.

It is evident that if these claims, as they are made by Much and Deycke in favor of their partial antigens, should prove to be correct, a very acceptable advance will have been reached in the specific treatment of tuberculosis.

THE PROTECTION OF THE PERINEUM BY EPISIOTOMY IN DELIVERY AT TERM

By DALE L. MARTIN, M. D., San Francisco.

The protection of the perineum by episiotomy in delivery at term seems at first glance a paradox. How is it possible by incising the perineum to protect it from injury? It would seem rather that by this act we would at once defeat the object of our endeavor. It is my hope to show, however, that the incision of the perineum or vulvar outlet at childbirth is our only prophylactic of merit against irreparable pelvic-floor injury, and that the protection of the perineum, as it is commonly understood and practiced, is a misnomer. Only primiperæ and those rare multiparæ who present the pelvic-floor findings of the former are here considered. Usually in multiparæ the damage has already been done.

It has been argued that Nature intended woman to be torn with her first baby, that subsequent deliveries would be quicker and easier. If we believe, however, that woman subserves an aim in life more inclusive than that of simple reproduction; that the reproduction function should not destroy her health, but increase it and contribute to her happiness, such teaching will pass unheeded. Of the illnesses peculiar to woman, none is so common as that arising out of pregnancy and childbirth, and of these, none is more potent for harm than the illnesses due to birth injuries. Hirst says that the proper repair of birth injuries will eliminate 60 per cent. of gynecological troubles.

It would be presumptuous of me to name to you the well known pathology and symptoms arising directly out of perineal injury at childbirth, symptoms traced by the patient herself to the time she had her baby.

So clear is the relationship between birth injuries and gynecological diseases that it has been recognized through the ages and numerous expedients have been devised to spare the woman perineal laceration. The measures range from the salves and relaxing douches of Hippocrates through the hand support of Soranus, the hot towels of Baudelocque, the manual dilatation of Van Horn, to the modern method of protecting the perineum by delivering the patient slowly, on her side, under anæthesia, maintaining flexion of the fœtal head, crowding it well up under the symphysis and causing it to escape between pains.

That the "protection of the perineum" is a misnomer, that it does not in any sense protect, is evidenced by the frequency of perineal tears. De Lee says he has never seen an anatomically intact perineum in a woman who had delivered an average sized child at term. Galabin and Blacker say all primiarae have perineal injury. Tweedy says that 45 per cent. of all primiarae have perineal tears of such an extent as to require suture. McNeal, of Los Angeles, in a recent number of the California State Journal of Medicine, said he had never seen an intact perineum following labor at term except in the Japanese.

Two years ago, it was my privilege to visit several of the large maternity hospitals of the East and to observe their obstetric methods. While at the New York Lying-in-Hospital, the question of perineal protection and damage came up. At that time, episiotomy was not practiced there even in operative cases. With the aid of an intern, we went over the birth records on one floor to determine the number of recognized perineal injuries, their proportion to the number delivered and their extent. From September 1, 1919, to September 23, 1919, the day of our investigation, there had been delivered on that floor 72 patients. Of these, 30 were primiparæ. There were during that time 8 operative deliveries from below with 8 perineal lacerations; 5 first degree tears, 2 second degree tears, and one third degree tear. Of the 64 spontaneous deliveries, there were 22 tears; all first or second degree. The total number requiring suture was 30, the same number of tears there were of primiparous deliveries, though the tears were not all in primiparae.

The injuries so far discussed are perineal injuries recognized as such by inspection; the skin or mucous membrane or both is broken; the tissues beneath are separated to a greater or less extent; an evident wound has been produced. It seems wise at this point to call your attention to the very important distinction between perineal tears which are readily recognized as such and can be repaired, and perineal injuries resulting from extreme stretching and relaxation of tissue with subcuticular and submucous tears which are not recognized and cannot be repaired. Of the two types, the latter is of more importance by far. What physician has not congratulated himself at the end of a slow, careful delivery, that he had no tear, only to discover in the same patient at a subsequent examination, to his embarrassment and chagrin, a gaping introitus, a rectocele and cystocele, or a prolapsed and retroverted uterus? Or, if one wish to prove the value of his perineal protection at once, let him at the end of such a delivery without tear, insert his finger in the anus and bring it forward against the perineal body from behind. He will be surprised at the small bulk of tissue which remains in it. Something is wrong with the perineal protection even though it apparently protects.

Because the tear is recognizable and can be repaired, while the relaxation due to submucous and subcutaneous stretching is not recognized until after months or years, when the damage has been done, and because it is not repaired, let us have tears in every primipara. Let them not be the usual spontaneous lacerations that follow prolonged pressure, that follow a dangerous degree of stretching, the laceration, the location and the extent of which are entirely beyond our control, the laceration which is difficult to repair; but let us make our laceration where we want it, as deep as is necessary in the particular case, and let us make it before pressure injury and undue stretching of tissue have occurred.

Episiotomy was first practiced by Ould in 1742 for delay in delivery due to resistant perineum. Michaelis in 1810 practiced it first in anticipa-

tion of a severe tear. It has ranged in location from median, lateral, bi-lateral, medio-lateral to numerous small incisions encircling the vulvar ring. Of these incisions, there remain in common use today the median incision in the perineal raphe down to the sphyncter ani, exposing but not incising it, a lateral incision in a plane perpendicular to the sagittal plane of the body, and the medio-lateral, that starting in the median line at the vulvar outlet and passing to the side of the sphyncter ani. In the last-named incision, the vaginal arm of the cut is in the sulcus on the same side and passes to the side of the rectum. The medio-lateral and lateral episiotomies are rarely bi-lateral.

In the selection of the episiotomy site, it is essential to consider the anatomy of the perineum and pelvic outlet and to know which of these structures is most important physiologically and which most liable to birth injuries.

Of the soft structures of the pelvic outlet, none is of more importance than the levator ani muscle with its investing fascia. It is the principle support of the pelvic viscera, and its preservation from injury at childbirth should be our greatest concern, though our protective efforts are usually directed to the less important perineal body. It arises, you remember, from the posterior surface of the pubis, from the fascia over the obturator internus muscle, the white line, and from the spines of the ischii, and passes backward, downward, and inward as a broad flat muscle to be inserted into the lower sacrum and coccyx and into the corresponding fibers of the opposite side in the median line. It is gutter-like, horse-shoe shaped, and is open in front behind the symphysis. Through this break in its continuity pass the urethra, the vagina, and the rectum. Its heavy anterior pillars can be felt at the sides of the vagina near its ostium. Contrary to the accepted belief, this muscle makes up but a small and unimportant part of the perineal body and sends to it only a few weak fibers. The main bulk of muscle is found behind the rectum. This is of practical importance in the protection of the perineum and in the repair of the birth injuries.

The levator ani, though distensible, is always injured at childbirth either by extreme stretching from which it only partially recovers, or by actual tears, frequently multiple. These tears may occur at any point in the anterior portion of the muscle surrounding the vagina. It may tear from its attachment to the pubis above, or posteriorly behind the rectum. Such injuries are irreparable and result in the so-called "pelvic-floor relaxation."

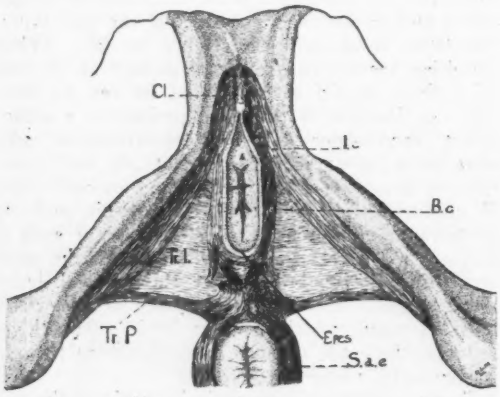
Occupying the arch of the pubis just superficial to the plane of the levator ani and extending backward to a point just in front of the anus is a fibrous membrane called the urogenital septum, the triangular ligament of the female. It is pierced by the urethra and vagina. This structure is always torn in delivery at term, and results, unless repaired, in the gaping outlet so frequently seen post-partum.

Overlying the urogenital septum and in a plane superficial to it are several muscles, the bulbocavernosis or spyncter vaginæ, and the transversus perinae alone concerning us here. They vary much in size or may be absent and are of little importance practically. The bulbocavernosis is always torn at childbirth.

Posterior to the base of the urogenital septum and in a plane superficial to the levator ani is the important sphyncter ani. Every reasonable effort should be made to protect this muscle from injury.

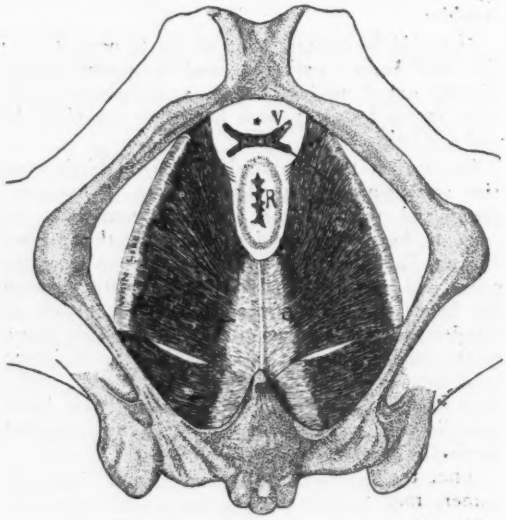
The perineal body, which so frequently is damaged and towards which our protective efforts are so largely directed, is of much less importance anatomically than the levator ani. Its tissue bulk is not great, being made up largely of fascia and fat and the decussating fibers of the transverse

Fig 1.



Diaphragma Urogenitale. Epes, location of superficial arm of incision. Cl, Clitoris; I.c, ischiocavernosus muscle; B.c, bulbocavernosus muscle; Tr.l. transvelar ligament; Tr.P, transverse perinei muscle; S.a.e, sphincter ani.

Fig 2



Levator ani muscle from below showing location of upper arm of incision. V, vagina; R, rectum; L.a, levator ani.

perinei, bulbocavernosis and the sphyncter ani muscles. The results of injury to it are those of the damage to its contained urogenital septum.

An incision to spare the tissue of the vaginal outlet must now be so planned as to protect them all; and if not all, then the most important. This is accomplished only by the medio-lateral incision which includes in its scope the division of the anterior pillars of the levator ani muscle. If necessary, this incision may be extended in the same line to meet a later indication for more room. A laceration super-imposed upon an inadequate episiotomy is usually in the same direction, a point of importance as the sphyncter ani is thus spared. With the medio-lateral episiotomy, I have never known a sphyncter ani tear to occur. Besides thus sparing the important supporting structure, the levator ani, and avoiding sphyncter damage, the other tissues of the vaginal outlet are by necessity spared. They are all included in this one incision.

The median or central episiotomy saves from damage only the perineal body and the median portion of the urogenital septum. The levator ani, passing behind the rectum and not in front of it, cannot be reached by this incision. Thus the less important structures only are here protected while a most important structure is frequently jeopardized. I refer to the sphyncter ani muscle. An extension of our line in the central incision gives us the justly dreaded third degree tear. In my mind, the median or central episiotomy has but one advantage: its ease of repair.

The lateral episiotomy is mentioned to be condemned. It has no advantage over the medio-lateral and is infinitely harder to repair.

Episiotomy is a prophylactic measure only when the wound is properly and accurately repaired. The repair must be anatomic; cut structures on one side of the incision must be accurately sutured to corresponding structures of the opposite side. This anatomic approximation of tissue is required in a clean belly wound; why not in the perineum? The conditions are not met by a few through and through silkworm gut sutures. This means that every primiparous delivery becomes surgical at its end with everything that surgical implies: asepsis, anaesthesia, good light, and, if possible, some assistance. It is not well adapted to the practice of obstetrics in the home, though it may there be done successfully, as I can testify from experience.

As to the technique of repair, only a few points of value may be mentioned. In the restoration of the levator ani muscle, do not look for the retracted lower end of the cut fibers in or across the median line in front of the rectum. They will be found lateral to the rectum on the side of the incision. An early suture of the vaginal mucosa from the upper angle of the wound to the hymenial ring converts a distorted and a symmetrical wound into one with recognizable relationships and much simplifies the repair. The careful restoration of the urogenital septum restores the non-parous appearance of the vulva and prevents a gaping introitus.

In a strict consideration of the question of perineal protection by episiotomy, it is essential to state that the aseptic conduct of labor throughout is essential. Our repaired wound must heal and heal without suppuration. The consideration of the value of episiotomy as a preliminary to operative delivery, where it is commonly practiced; of its value in protecting the infant from frequent injury of slow and difficult delivery; of its use in simple delay in delivery, would carry us too far afield.

For some time, I have done an episiotomy on every primipara I have delivered at term, whether spontaneous or operative. My results more than justify it. With me, it has come nearer offering true perineal protection than any other measure I know.

PROBLEMS IN PLASTIC SURGERY*

By GEORGE WARREN PIERCE, M. D., San Francisco

As with certain other surgical specialties, plastic surgery has shared in a distinct advancement due to the recent war. The urge of thousands of mutilated faces developed special plastic centers and grouped gifted surgeons, who revised the older methods and evolved new methods of plastic reconstruction. The writer spent some time at Queen's Hospital, the British center for plastic reconstruction, and had the privilege of working there with Mr. H. D. Gillies, whose genius and devotion to this subject have gone so far in solving the problems of plastic surgery. Observations of some of the methods in use at Queen's Hospital will constitute the major portion of this paper, together with the relation of these methods to civil surgery.

Given a case of plastic surgery, it behooves the surgeon to make a careful and detailed analysis of the case, not only from the standpoint of history, but also an analysis of the exact amount of tissue loss of every kind, bone, cartilage, muscle, tendon, nerve, mucous membrane and skin. The huge, gaping wounds that often appear when apparently small scars are excised and the tissues are allowed to retract to their normal station bear witness to the necessity for this careful analysis.

As to fresh wounds, proper care of these will do much toward obviating the necessity for secondary plastic operations. Wounds of the face generally heal readily on account of the rich blood supply, but the question always arises as to the advisability of primary suture with or without drainage. A rather extended experience in industrial surgery has made me a firm believer in the efficacy of a thorough *debridement* with primary suture if done within a few hours after injury. This method has stood the test for me in a large number of cases of hands mangled in machinery where dirt is ground in and much of the tissue devitalized. In the large majority of cases, wounds treated by *debridement* will heal by first intention. Sometimes the surgeon's judgment will dictate the use of drainage or secondary closure, and this is particularly demanded of wounds more than eighteen to twenty-four hours old. A maxim

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to be followed in large facial wounds and lacerations is to place all parts as nearly as possible in their normal position, to sew skin to mucous membrane in wounds of mucous cavities where similar layers cannot be joined, and to use prosthetic appliances if necessary to hold the tissues in normal position where supporting structures have been destroyed. Restoration of contour should be secondary to restoration of function, though the two are generally concomitant. The aid of the dental surgeon at this stage is often of great value in providing artificial supports for the soft tissues or to hold bony fragments in line.

Plastic repair of healed wounds should ordinarily not be undertaken until all contracture of the scars has ceased. When scar tissue is present at time of operation, it should be entirely excised, as then only can the operator rest assured that a good cosmetic and functional result will not be marred by contracture. The surgical problem of restoring contour and function demands a careful analysis and visualization, in the severe cases, of the effects of many stages, and of the mechanical and physiological difficulties related to each stage. The factors in each stage are unfortunately variable, differing commonly for each stage and each patient, and long experience is necessary to forecast with a degree of accuracy the viability of a proposed flap, the probable amount of contracture, or the amount of tissue which may be shifted into a defect without later marring the contour or function of some adjacent part.

The careful study of the use and possibilities of the tissue flap is a prime requisite for the plastic surgeon. A great variety of flaps have been elaborated by surgeons past and present, but it is safer to rely mainly on the simpler basic types, conserving the more complicated flaps for the cases distinctly demanding them. The basic types are the advancing flap, the transposed flap and the bridge tissue forward from that immediately adjoining the defect, the transposed flap has its base only at the defect, while the bridge flap brings tissue from a distance to the defect and is nourished by a suspended pedicle.

A valuable advance in the treatment of pedicled flaps was the introduction by Mr. Gillies of the practice of tubing the bridge pedicle. This method goes far toward eliminating the two great enemies of success in plastic operations—namely, infection and insufficient blood supply. To prepare this type of flap parallel incisions are made through the skin and partly or entirely through the superficial fascia. The intervening tissue, to the desired thickness, is freed and the parallel skin edges of the pedicle are carefully sutured together with continuous suture to form a tube. The tubed pedicle is then raised and the remaining wound edges undercut and accurately sutured together. Suture is continued till all parts of the wound are closed. The pedicle is then left from two to four weeks till the blood supply is fully established and all wounds healed. To further insure the success of the flap, the flap should be marked out with a scalpel several days before the transfer to the defect. The scalpel is carried through the skin and the blood supply now comes almost entirely through the pedicle, though supplemented to some extent through the fascial blood supply beneath the flap. When the flap is transferred the blood supply is well established and the area liable to infection is reduced to a minimum. These tubed pedicles may be transferred several times—first one end, then the other, allowing sufficient time for blood supply to be established. If the original base is not transferred, the pedicle may be untubed and returned to its original station after it has served its purpose. Forehead flaps cannot, as a rule, be tubed on account of the thickness of the skin and its unyielding nature. Pedicled flaps must be carefully located and a study made of their possible blood supply. Flaps from the face and forehead region, especially when containing an artery such as the superficial temporal, have a greater assurance of success than ascending flaps from the neck on account of their richer blood supply. In cutting the flap Gillies believes that the cosmetic and functional results are better served by cutting the flap according to a tin-foil pattern of the defect rather than to cut a third larger to allow for shrinkage, as was the custom formerly.

The question of post-operative treatment of flaps is all important and often determines the success or failure of the operation. During the period immediately following operation the flap is usually blanched to a greater or less extent. If cold or blanched, warm normal saline compresses changed every five minutes should be diligently applied and one is generally rewarded by seeing the flap become pink and warm. The cyanotic but warm flap is the opposite type. This is seen in the temporal artery flaps and others of rich blood supply. Here the arterial inflow is greater than the venous outflow and oedema and sloughing are apt to occur if the condition is allowed to continue. Many authors advise the use of multiple punctures for this complication, but gentle efferent massage, combined with the judicious use of warm saline compresses, gives excellent results. This avoids mutilation and scarring of the flap and the increased liability of infection.

Skin grafts are an inseparable part of plastic surgery. The Ollier-Thiersch epithelial graft is familiar to all surgeons, but at Queen's Hospital the common mode of application has been almost entirely superseded by some form of Esser's epidermical inlay. This inlay is one of the most important recent contributions to the art of plastic surgery and solves many difficult problems which have hitherto baffled all efforts. Esser's method consists in making a negative impression in warm dental modeling composition of the area or cavity to be grafted and covering this with a thin Thiersch graft, raw surface out. The model with the graft is then buried by sutures in the cavity or bound onto the surface to be grafted and left for about ten days. When the composition is removed at the end of this time a very high percentage of 100 per cent takes are observed. This procedure was immediately adopted by plastic surgeons and

numerous modifications greatly increased its scope of application. It may even be introduced directly into the mouth, where, in spite of the potential infection existing at all times, it is uniformly successful. It is very valuable in the treatment of labiogingival sulci obliterated by scar tissue, and may be used in the conjunctival sac as well. It also has a wide application on the body surface. Its very simplicity recommends it and its advantages over the old methods of Ollier-Thiersch grafting are very definite. How many times has the surgeon carefully applied Thiersch grafts, then within forty-eight hours has seen the grafts gently but effectively lifted from their bed by accumulated serum. The negative impression should be made very accurate both as to coapting surface and as to edges. The reason for this care is the basic principle of the method; in other words, the model acts as a very definite splint, keeping an even pressure that holds the Thiersch closely to the wound, stops bleeding and prevents the destructive gathering of serum. The applicability of the method commends it highly. Types of wounds which hitherto have required grafting in several stages may now be done in one stage. It is desirable to obtain the Thiersch in one piece, but if the model is large, excellent results may be obtained from using several pieces of skin. Gillies' operation for cicatricial ectropion is an apt illustration of the application of Esser's method. In this operation incision is made close to the lid margin in its entire length and the lid dissected free until it falls into its proper place. The model with Thiersch is then buried in the raw area by sutures, care being taken to pick up the edges of the graft with the suture. The author recently operated on a case in this manner, in which drainage through the tear duct was re-established after having been cut off by an epicanthus scar for twenty years.

The modeling composition also makes an excellent splint backing for Wolfe grafts and increases the number of complete takes. Wolfe grafts should be cut to tin-foil patterns and accurately sutured in place, and give better results when used on firm surfaces, such as the forehead.

Bone and cartilage make the best supports in plastic work, for foreign materials, as celluloid, etc., though occasionally successful, are not often tolerated by the tissues for any length of time. The seventh and eighth rib cartilages offer the largest amount of material and their removal rarely causes trouble. The cartilage may be readily shaped with the knife and any spare pieces may be stored in the abdominal wall through a small incision. The stored cartilage remains unchanged even after many months. Unless the perichondrium is removed the cartilage graft tends to bend toward that side and the precaution of removal should be taken.

Free fat grafts give excellent cosmetic results, but should only be used in areas entirely free from infection and where all bleeding has been stopped. These grafts should also be handled by the "no-touch technic" to insure success.

While the war experience was, in almost all cases, with tissue destruction from shell fragments or burns, its value to civil surgery is far reaching in the application of these principles to civil practice. Industrially, we meet almost exact prototypes of war wounds. Direct blows, explosions, falls, and machinery are continually destroying tissue in much the same manner as do shells in the trenches. Burns are numerous, both from fire and chemicals, and automobile accidents are an ever-increasing source of wounds of the face. Disease is constantly carrying on its destructive processes and the inroads of malignancy, lues and noma, are no less definite than the wounds of battle, while the scarring from lupus and pyogenic infections calls for earnest effort on the part of the surgeon. Congenital malformations we will have with us always.

The tubed pedicle method of Gillies and the epidermic inlay of Esser, of all the advances brought out by the war, will be found especially valuable. The large amount of tissue made available by the tubed pedicle, together with the comparative freedom from the danger of infection, commend it highly. The diversity of application of Esser's epidermic inlay has materially broadened the scope of the plastic surgeon. New uses for it are being found daily. In the oral cavity or about the eye, on the body surface or in the reconstruction of a new urethra it will be found reliable and efficient.

This type of work demands careful planning and exactness of technic and diligent attention to a multitude of small details, but if these are followed out the results will be most gratifying in the solution of the problems of plastic surgery.

THE INFLUENCE OF ADRENALIN ON NEPHRITIS AND ITS COMPLICATIONS BY INJECTION INTO THE KIDNEYS.*

By GEORGE LEE EATON, M. D., San Francisco, California.

In presenting this subject for your consideration, I do so knowing that I will meet with many adverse opinions, owing to the liberties taken, contrary to modern physiology and experimental medicine. Still, we can only expect to progress in the science of our profession by now and then "throwing a bomb," the recoil of which tends to bring out discussion and further animal experimentation.

The most important step in our knowledge of the kidney and its physiological function was first described by Bowman in 1842, with further investigation by Heindenhain in 1874, who, after much research and experimental work, published in 1883 his "Handbook of Physiology," dealing principally with the kidney and its function.

Cushny, in his last publication 1917, endorses the Heindenhain theory with a few modern suggestions relative to the capsule and its permeability to proteins, etc. The Heindenhain theory, with its modern attributes of laboratory and animal ex-

*Read before the St. Francis Hospital Clinical Society, April 25, 1921.

perimentation, puts us in a fair way to discuss physical changes taking place in the kidneys, and their influence upon the general animal economy.

With the foregoing preliminary introduction we are in a position to discuss the theory of kidney function, both physiologically and pathologically, based upon clinical experience and observation. I wish first to call your attention to the embryology of the suprarenal glands as a basis for argument later.

Primarily, very little is known concerning the suprarenal glands, and the part played insofar as their internal secretions are concerned. There is little doubt but what they bear a close relationship to the urogenital organs, as well as to their development and physiological function. Upon embryological investigation we find that they spring from the genital ridge, being of mesodermic origin, and in common with the kidney, while histologically the epithelial cell arrangement of the cortex is very much like that of the proximal and distal convoluted tubular epitheli of the kidney. The medulla of the gland, both embryologically and histologically, and so far as experimental research is concerned, might as well be identified as a separate gland, as we find it embryologically springing from the sympathetic nervous system, and, according to Balfour, doubtless of ectodermic origin. Physiological research, up to the present date, has not enlightened us as to whether it is productive of internal secretion, still there is a strong suggestion that there may be a correlative influence with the cortex, similar and like unto the posterior and anterior lobes of the pituitary body.

To substantiate the above, I refer to Biedl,[1] who claims that the removal of the cortex, leaving the medulla intact, produces death to the animal, life not being sustained by the administration of adrenalin. On the other hand, Wheeler[2] attempted to remove the medulla. Success was only met with in their experiments when the cortex was left intact or uninjured. Transplantation after total adrenalectomy has met with failure, except in those rare cases where the adrenal cortex and medulla were planted into the cortex of the kidney. The correlative influence of the medulla over the cortex is well exemplified, there being no doubt that the medulla, with its highly organized sympathetic nerve supply, acts as a controller over the cortex in the production of an internal secretion.

Antitoxin Effects of Adrenalin—The detoxicating action of adrenalin has been definitely proved by Meyer,[3] who added an emulsion of suprarenal cortex to cobra venom, rendering the same harmless.

Experiments on a pit viper (rattlesnake) in 1914 substantiates Meyer's contention, having subjected a full-grown rattler to hypodermic injection of adrenalin, allowing a few days to elapse before drawing the venom. The venom thus drawn had a decided toxic influence upon a full-grown rat injected with ½ cc. of a solution of 1-500, death ensuing in a few hours. A ½ cc. of 1-500 solution of venom with ½ cc. of adrenalin added was injected into another rat, the same having but very little toxic influences, while the same amount and same strength of venom drawn from another rattler, without adrenalin, produced death in a third rat within ten minutes. These experiments and results are mentioned as corroborative evidence, tending to prove that the suprarenal hormones act within the blood through the kidneys as antitoxins and as regulators of cell activity.

Returning to our original theme of renal function, I wish to speculate, and at the same time transgress somewhat from the Bowman, Heindenhain and Cushny theories, by incorporating experiments of recent date, in substantiating the glomerular filtration of water, salts, dyes, etc., plus the secretive value of the epitheli of the proximal and distal convoluted tubule, of water, urea and other constituents found in the urine, and the absorptive power of water by the epitheli of the descending and ascending loop of Henli—all of which I feel has been fairly well proved by careful animal experiments. Notably, the secretion of urea by the epithelia of the convoluted tubule as outlined in an able article by Jean Oliver.[4] Thus, these established theories, plus a liberal supply of suprarenal hormones act the part of a dual role. The first acts upon the sympathetic nerves of the kidneys. The second is that of an antitoxin with antigenic influence on the toxins and bacteria within the blood stream.

Relative to the permeability of the uriniferous tubules and glomeruli to drugs, dyes, mineral salts, etc., introduced by catheter into the kidney pelvis: Many recent experiments by authoritative investigators all prove that the same may reach the general circulation as in pyelogram—notably, among cases and pathological reports by D. N. Eisendrath,[5] Keys Jr.,[6] E. H. Weld,[7] J. E. Burns and P. B. Hopkins,[8] all of whom agree that upon post-mortem findings, collargol, thorium and other soluble silver salts are to be found in the uriniferous tubules, glomeruli, liver, lungs, spleen and other accessible parts of the anatomy. Others, whose experiments have been limited to drugs of known physiological action, dyes, etc., have definitely proved that the kidney, through its intricate cellular development, is capable of absorption and transmission to the blood current, with a perceptible action upon the sympathetic nerve system. Cow,[9] Adis,[10] D. J. Macht,[11] J. E. Burns and E. I. Swartz.[12] As corroborative evidence of the foregoing, 1 cc. of phenolsulphonephthalein in 5 cc. of distilled water was injected into the left kidney pelvis, the urethral catheter was blocked, while the secretion from the right kidney was tested every three minutes for return of the dye. The first color showed in ten minutes, and 10 per cent recovered the first thirty minutes. Feeling that the foregoing is substantial evidence, and that it may be permissible to utilize the kidneys, if necessary, for the introduction of drugs, dyes and antiseptics with no appreciable harm resulting therefrom, provided that strict antiseptic care be adhered to in introducing the urethral catheter into the kidney pelvis—as an example of such treatment, I cite a case where it became necessary, due to hematuria of the right kidney to

control the hemorrhage. As the case showed marked signs of shock, 1 cc. of adrenalin solution was forced into the kidney pelvis in the hope of controlling the hemorrhage. Previous to this procedure the patient's blood pressure had been noted for the purpose of determining the advisability of surgical intervention, and at the time showed a systolic pressure of 80, diastolic imperceptible, with a radial pulse of 130. A few minutes after the injection the assistant called my attention to the pulse, which had become much stronger, and a marked change in the patient's general condition was noted. Blood pressure was again taken and found to be—systolic 120, diastolic 70. I might add that the kidney was removed shortly afterward and found to be tubercular, the hemorrhage emanating from an ulcer in the middle cortex.

The findings in the above case incited within us a desire for further investigation. A few cases of nephritis with high blood pressure were chosen after the installation of adrenalin into the kidney pelvis—a marked fall in blood pressure was noted within twenty-four hours, also an increase in the urine output in those cases who previously had a tendency to anuria.

Following this, a general survey of the literature on the subject and a close scrutiny of case reports, I find the following by Cushny.[13]

"Adrenalin injected intravenously constricts the renal vessels and lessens or arrests the secretion of the urine. Given by subcutaneous injection it increases the sugar of the blood, and often causes glucosuria. Marshall and Davis state that on cats the extirpation of the suprarenal bodies leads to impairment of the kidney action, which is signalized by the urea of the blood rising to twice its normal concentration."

In regard to blood pressure, I note 336 cases of nephritis as tabulated by P. K. Brown and W. T. Cummins,[14] 254 with blood pressure range between 140 and 179, while the remaining 82 cases represent a blood pressure of 180 plus.

As evidence of the foregoing it is well to concede that all true nephritic cases invariably run a much higher blood pressure than normal irrespective of age or sex.

Our experience in the administration of adrenalin, injected into the kidney pelvis has just the opposite effect upon the urine from that stated by Cushny,[13] while upon the blood pressure the tendency is to stabilize it toward normal.

Tabulation of 50 Nephritic Cases

13	cases	representing	Type	3
15	"	"	"	2
22	"	"	"	1

From the above I have chosen a few cases of each type to emphasize the result of treatment.

TYPE 3

Case 1. Miss O'D., age 27, entered Saint Francis Hospital, July 29, 1919, at 8:30 a. m., in partial coma with anuria. Catheterized specimen of urine: Examination—albumin heavy cloud, reaction acid, acetones. Microscopic: Casts epithelial, blood and granular. Blood pressure, 190-110. At 4:30 p. m. double catheterization with installation of 1 cc. of adrenalin solution into pelvis of each kidney. Following twenty-four hours eighty-one ounces of urine was voided. Blood pressure, 135-85. An uninterrupted recovery and re-establishment of the kidney function. Subsequent report, July 20, 1920, one year later: Urine normal, blood pressure, 120-85.

Case 2. Mrs. C. L. W. Referred by Dr. Roscoe Logan. Entered Saint Francis Hospital, March 22, 1921. General edema with a daily urine output for the past six months, averaging 180 cc. Catheterized specimen examined: Reaction acid, specific gravity 1023, albumin trace. Microscopic: Calcium oxalates, casts—hyalin, epithelial and granular. Blood pressure 186-106, with a perceptible aortitis and myocarditis. 3500 cc. fluid asperated from abdomen.

March 23, 9 a. m., double catheterization with installation of 1 cc. of adrenalin solution into pelvis of each kidney. Following twenty-four hours, urine output 720 cc., blood pressure 138-90, with a perceptible reduction in the oedema. Case removed to residence under care of Dr. Logan, who reports the urinary output at practically normal.

Case 3. Mrs. E. K. February 10, 1921. Age 54. History: For the past four months has been confined to bed—general oedema of lower extremities. Examination, February 10: Abdomen greatly distended, with general oedema of the extremities. Heart—pulse very weak, distinct mitral lesion, with general cyanosis. At 7 p. m. 2400 cc. fluid aspirated from abdomen. February 11, 9 o'clock a. m., 2½ ounces of urine catheterized. Examination: Reaction acid, specific gravity 1028, albumin 5 grams to liter. Microscopic: Casts hyalin, epithelial and granular. At 4:30 o'clock p. m. temperature and pulse subnormal; 1½ ounces urine catheterized from bladder. Double catheterization 1 c. c. of adrenalin solution into each kidney pelvis. Great apprehension as to whether patient would survive the night.

February 12, at 4:30 p. m., elapse of first 24 hours urine output 480 c. c.

February 13, 4:30 p. m., elapse of second 24 hours urine output 382 c. c., blood pressure 125-85.

February 14, 4:30 p. m., elapse of the fourth 24 hours, urine output 1054 c. c., blood pressure 130-90.

February 16, 4:30 p. m., elapse of fifth 24 hours, urine output 1188 c. c. Catheterized specimen examined: Reaction acid, specific gravity 1020, no albumin. Microscopic examination: Few pus and red blood cells, no casts.

February 20, 24 hour urine output 1650 c. c. Blood pressure 148-80.

March 7, urine output 1600 c. c., blood pressure 190-90.

March 8, 1 c. c. adrenalin solution injected into each kidney pelvis.

March 9, elapse of 24 hours. Urine output 1230 c. c., blood pressure 138-78.

March 11, patient was discharged from hospital. No oedema, normal urinary output with stabalized blood pressure of 150-90.

Case 4. Mr. F. J. B., age 38: Referred by Dr. C. M. White. At 3 o'clock a. m., June 4, 1920, patient had first convulsion with total anuria. Diagnosed uremia. Blood pressure 280-120.

At 1 o'clock p. m. patient in profound coma, having had 25 distinct convulsions. Double urethral catheterization and 1 c. c. adrenalin solution injected into each kidney pelvis.

At 9 p. m. patient perspiring freely. An attempt to introduce catheter elicited the first signs of consciousness, as he seemed to realize what was expected and insisted upon voiding, the result being 248 c. c. of urine. Blood pressure 150-110. From thence on patient made an uninterrupted recovery. On July 23, 1920, a thorough examination made at Saint Francis Hospital with the following report: Urine normal, blood normal, serological examination negative, blood pressure

130-80. General gastro-intestinal X-ray normal, thorax normal, teeth normal, tonsils diseased and removed. On December 26, 1920, patient developed lobar pneumonia and died December 28th.

The foregoing cases illustrate that type of advanced toxemia, and are designated as Type 3.

TYPE 2

The following cases represent Type 2, a milder form of toxic involvement:

Case 1. Captain G. G., age 54. Referred by Dr. A. W. Collins. Entered Saint Francis Hospital December 3, 1920, 11 o'clock a. m. History of having had an attack of paraplegia. Blood pressure 285-120 with an average daily urinary output of 3399 c. c. Oedema present in lower extremities. Catheterized specimen examined: Reaction acid, specific gravity 1010, albumin 2 grams to liter. Casts: Hyalin, epithelial and granular. Was only able to catheterize right kidney owing to atresia of left ureter, which later proved by X-ray to be an embryological left kidney. 1 c. c. of adrenalin in solution injected into pelvis of right kidney. At 6 o'clock p. m. blood pressure 210-110. Contrary to patient's former habit of urinating several times during the night, it was only necessary to void once, amount voided 248 c. c. December 4, 9 o'clock a. m. blood pressure 190-95 with disappearance of symptoms, i. e., headache, lassitude and muscular weakness. December 9, injection of 1 c. c. adrenalin solution into right kidney pelvis. Patient discharged from hospital December 10, 1920, with normal urinary output; blood pressure 210-110. Four months have elapsed since treatment. Urinary output normal—free from albumin and casts. Blood pressure, 190-140.

Case 2. Mrs. A. M. S., age 57. History of an illness in 1918, diagnosed nephritis. November 26, 1920, examination: Headache and general asthenia; lower limbs oedematous, blood pressure 190-110. Urine examination: Reaction acid, specific gravity 1023, albumin 4 grams to liter. Microscopic: Casts, hyalin and granular.

November 28, 1920, urethral catheterization and 1 c. c. adrenalin in solution injected into pelvis of each kidney. December 1, blood pressure 140-80. Urinary examination: Albumin no casts. Oedema of legs disappeared. December 17, date of discharge. Blood pressure 130-80. Normal urine with the exception of a faint trace of albumin.

March 21, patient in meantime lost her husband through a railroad accident. With all the sorrow and business responsibility we find upon examination, three months later, blood pressure 145-80, urine normal with exception of a trace of albumin.

TYPE 1

The following cases represent a still milder form of toxemia with no variable change in urine or blood pressure from cases noted above.

Case 1. Mrs. B. B., age 53. Referred by Dr. J. H. O'Connor, November 23, 1920. History of irritable bladder for several years, noticed at times slight swelling of ankles, blood pressure 180-120. Urine examination: Reaction acid, specific gravity 1020, albumin 2 grams to liter. Casts, hyalin. Injection of 1 c. c. of adrenalin in solution into pelvis of each kidney.

November 30, blood pressure 135-90, albumin free. December 15, blood pressure 135-80, albumin free with disappearance of her former bladder symptoms.

March 23, blood pressure 135-80. Urine albumin free.

Case 2. Mrs. L., age 25. Referred by Dr. R. K. Smith. While in training for a nurse albumin was discovered in urine; advised to give up training. Shortly afterward married. One year later became pregnant and at seven months had uremic convulsions, necessitating cesarian operation.

March 15, 1921: Blood pressure 200-120. Specimen of urine examined, 15 grams albumin to liter. Microscopic: Casts, hyalin, epithelial and granular.

March 16, at 1:30 p. m., double catheterization and 1 c. c. of adrenalin in solution injected into pelvis of each kidney.

March 17, 1:30 p. m., blood pressure 135-95. Specimen of urine examined: Reaction, acid, specific gravity 1015, albumin 3 grams to liter.

The cases just cited illustrate in a way the different degrees of toxidity as expressed primarily by the kidneys. For example, let us investigate Case 4 of Type 3—total anuria, high blood pressure with convulsions.

If we could analyze at the time the physiological function taking place within the kidneys, we would, in all probability, find an active glomerular filtration with stasis of the proximal and distal convoluted tubular secretion with a hyperabsorption by the descending and ascending loop of Henli, causing, as it were, an absorption of the water element equal to that of secretion. With a complete retention within the blood of urea and other constituents secreted by the proximal and distal convoluted tubules, plus a hypo-adrenia.

In recapitulation, we will, as in the foregoing, assume that the physiology of the glomeruli is to secrete or filter the water and salts, accompanied by albumin, when its physiological function is interferred with, and will be designated in the following formulas by a **plus** sign when the secretion is normal or in excess, and by a **minus** sign when reduced or absent. The foregoing will likewise apply to the proximal and distal convoluted tubules and the descending and ascending loop of Henli:

Formula 1

Glomeruli .....+	
Convoluted tubule.....+	Normal Urine
Descending and Ascending loop of Henli.....+	

Formula 2

Glomeruli .....+	Anuria. Albumin and Casts when function is re-established. Symptoms: Uremia, Convulsions and Coma.
Convoluted tubule.....—	
Descending and Ascending loop of Henli.....+	

Formula 3

Glomeruli .....—	
Convoluted tubule.....+	High concentration. Albumin, Casts. Symptoms-oedema.
Descending and Ascending loop of Henli.....—	

Formula 4

Glomeruli .....+	Polyuria or normal fluid output. Albumin and casts. Symptoms: Asthenia, oedema gastro-intestinal disturbance.
Convoluted tubule .....—	
Descending and Ascending loop of Henli.....—	

The above formulas may assist in classifying the different phases of renal toxemia as expressed by renal secretion.

SUMMARY

1. In using the word "nephritis," I do so more from usage, for in a strict sense it should only be used to designate a pathological condition resulting from infection within the kidney proper, for example—tubercular nephritis, streptococcic nephritis, etc., whereas the term nephro-toxemia explains a constitutional condition wherein the kidney function is impaired, and the secretion from same becomes the "signal light of danger." Relative to focal infection in these cases, much attention has been given to removal of teeth that

showed granuloma, or other infectious changes—likewise the tonsils.

2. Concerning the rapid action of adrenalin upon the heart, when injected into the kidney pelvis, as registered by the cardiograph, which shows a distinct curve within five seconds: This is evidence that the impulse is transmitted through the sympathetic nerves of the kidneys to the heart, and not by the blood stream.

3. Regarding diet—no restrictions have been made; in fact, the patients have been requested to partake liberally of a miscellaneous diet.

4. If, by the above suggestions and treatment, we are able to make a 10 per cent improvement over and above former treatments, I feel that our efforts have not been wasted.

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NEW OBESITY CURES FOR OLD OR THE CHIROPRACTIC THRUST*

By LULU HUNT PETERS, M. D., Los Angeles

"Chiropractic is hereby defined as being that system of adjusting the articulations of the bony framework of the human body especially asymetries of the vertebrae, for the purpose of removing the cause of disease by the corrections of subluxations, thereby removing the pressure, impignement or tension of the nerves having their passage in, through or around the structures subluxated. The subluxation is corrected with the hands, using the bones of the body, more particularly the spinous and transverse processes of the vertebrae, as levers to which is applied a peculiar adjusting movement—the chiropractic thrust."

When Attorney H. F. McInturff read from the statute books of Oregon the above definition of "chiropractic" at the League for the Conservation of Public Health luncheon at the recent State Medical Meeting, I became imbued with a wild desire to experience the Chiropractic Thrust. I had experienced many of the well known thrusts, —thrusts into the cold world, thrusts into utter oblivion, etc.—but never had I experienced the chiropractic thrust. I would! I would before I left San Diego! I was not known there—I could do so with a fair degree of safety. In my home town where the C's know me I would not dare to risk it. They would take too great delight in breaking my back. But I was not known in San Diego. So Friday morning while the rest of the medical fraternity were care free and happily playing around Tia Juana, I voluntarily risked my life in the interest of science and ambition.

Presenting myself at the office designated by one of the most alluring of the chiropractic advertisements, I was met by a 235-lb. slip of the deadlier sex who announced that she was the Doctor. Did I desire an examination and treatment? I did. Ushering me into a plush-curtained compartment she handed me an apron with the instruction to undress to the waist and to put it on opened at the back.

Emerging thus attired and clutching my handbag containing my check book and other things identifying me as a medical trust doctor, I was seated on a low stool facing a large chart of the female form, furnished simply but elegantly with a large bony spine fringed with cut-off nerves.

Now I must explain here certain things, to wit: I am totally and entirely healthy. My only complaint in life being that upon repeated and successive exposures to good food I contract the deadly malady known as obesity. Now I had suffered a relapse of that condition after I had been released from duty with the Red Cross in the Balkans, and coming home where I was known to the layman as the inventor of the calorie as a cure for obesity it behooved me speedily and promptly to practice what I preached, and by strenuous diet, exercise and Kellogg-Bergonie electric chair shimmying I had succeeded in getting back to my perfect 38.

Now come back to me sitting before the spinely furnished lady with my back exposed. I had not said much. The "Dr." had not said much. You know they advertise to diagnose everything without asking a question. But as she bends me forward and begins to palpate my spine, knowing that patients are always voluble as to their symptoms, I venture the remark that I have been rapidly losing weight recently, and hearing a great deal about chiropractic I thought I would try it and see if they could find out the cause.

"That so? Well you done well to come to us. They aint no medical doctor who can diagnose

* See editorial on Diet and Health, etc.

diseases—we call them 'dis-eases'—like us. They seem to be having it in for us, don't they? You tender there behind the ears? No? How about here? Ah! You have a subluxation of the second cervical! That will account for your bad headaches and blurred vision. You have them? No? Well you will have unless that is adjusted. Lucky you come in time. Yes, the medical doctors won't let us take the examinations unless we go through their medical colleges, they won't recognize our colleges. There are some chiropractors practicing here in California but they got in by bribing the state examiners fifty dollars. Yes! Aint it terrible? We don't believe in drugs and germs and all that superstition so why should we have to go through their colleges? Ah! You tender here? I thought so! A bad subluxation of the ninth dorsal—it's throwd away out of place! That's what is causing your rapid loss of weight! The nerves going to the pancreas and spleen are impinged like you would step on a hose. No vital fluid going through them. But the medical doctors will have to stop persecuting us for nobody believes in them no more and we are getting all of their patients—another subluxation of the second lumbar! You get up nights—for your water? No? Well you would soon unless that subluxation is adjusted. You have the beginning of terrible kidney disease. This is all for the examination. Now come in here for the adjustments."

Still clutching my bag I am directed to step on the foot rest of a padded segmented upright-standing table. Taking my bag from my reluctant fingers—me still keeping my eyes on it—she puts it on a chair and places my hands on some side handles and with a crank lowers the table with its one hundred and fifty pounds of medical trust to the horizontal. She tells me to relax. Expectantly, but not terribly happy, I realize my ambition to experience the C. T. is coming.

Placing her hands on my lumbar region which is sagging slightly over the space of the segmented table, with a terrific sledge-hammer action 235 pounds of persecuted chiropractic comes down on it. Mon Dieu! Gottimhimmel! She must have recognized me and is going to kill me, I begin to suspect, as I spring back through the space.

"Was that the Chiropractic Thrust?" I tremblingly ask.

"Yes, did you hear the tissues as they were torn away?"

"No, but I felt them," I feelingly respond. "I think that is enough for one treatment, isn't it?"

"No, two other adjustments," and she comes down on the region of my ninth dorsal. Nnnnnn! Now the cause of my rapid loss of weight is adjusted.

"That's enough surely?"

"Not yet. Turn your head so." Creek! Crack! Mon Dieu again! Now I am convinced that she knows me as I hear as well as feel the "tissues being torn away." Surely she intends to break my neck! But no. She lets me up and semi-dazed but fully adjusted I stand, glad to be alive.

Now I am ushered to another room where sits a sad-faced, agreeable young man, the male chiro of the firm who will explain to me all about myself from the chiropractic standpoint she tells me.

Giving me an intensely searching look which I answer with a blank, innocent baby stare which reassures him I am not an agent of the trust, and seeing from my face that I have suffered—I'll tell the world I have suffered—, he takes from his desk a wabbly human spine put together with felt discs and with a rubber tubing running through the center. Manipulating this deftly he shows me how my nerves have been pinched, and how all of my tissues have been starved on account of this, thus accounting for my loss of weight. He demonstrates to me very logically and beyond a shadow of a doubt that all diseases are due to subluxations and consequent impingements. (Even venereal diseases? Yes, even venereal diseases!)

Coming back to my symptoms he tells me that it will take a course of the adjustments before my vertebrae will stay in place, and how he hopes I will come and get back perfect health for there is nothing like chiropractic. I agree with him! I sit fascinated, hynotized, by the flexible spine as it compresses the nerves and adjusts and readjusts itself under his facile fingers. I forget that my spine is not put together loosely with felt discs, that ordinarily it is not in the hands of a nimble chiropractor, and that if my vertebrae could slip back and forth so easily and compress my nerves so readily and if they could be adjusted by anyone that I would want the most highly educated, highly trained, scientific specialist the world could produce. I have no ambitions to be taking my harp lessons prematurely.

I forget all this and I think that we must stop this "persecution" of these noble healing advertisers. Then I think of the 235-pound chiropractic thrust I got,—and I think what a stupendous fake the whole business is. And I tell him when he asks me to come back that he has convinced me that there is something in chiropractic, but because I still find joy in life I escape without telling him what I consider it is.

* * *

I am terribly interested in this question of obesity. This theory of the subluxation of the ninth dorsal vertebrae attracts me strangely. I shall devote the remainder of my life to finding how you get that way, and thus add a sublux to my calorie.

AMEBIC ABSCESS OF THE LIVER.*

By P. K. GILMAN, M. D., F. A. C. S.,
San Francisco, Calif.

Based upon records of cases occurring in our service in the Philippine General Hospital, Manila, P. I., and from the Surgical Clinic, Stanford University School of Medicine, San Francisco, California.

OUTLINE.

1. Definition
2. Etiology
   1. Amebic infection
   2. Predisposition
   3. Distribution
      a. temperate climates
      b. tropical climates
3. Pathology
4. Symptoms and Physical signs
   1. General
   2. Local
5. Diagnosis
6. Complications
7. Treatment
8. Conclusions

Too often considered a disease limited to tropical or subtropical localities, amebic abscess of the liver is not rare in many parts of the United States. Two cases have come to operation in the surgical clinic at Stanford University in this city during the past ten months, two more in private practice and there are at least three localities in this state from which several cases of amebiasis have come for diagnosis and treatment.

1. *Definition:* Amebic abscess of the liver is an hepatitis going on to suppuration due to the ameba histolytica, the patient not necessarily giving a history of a preceding attack of dysentery.

2. *Etiology: Amebiasis.* The finding of amebae in the walls of the abscess and in the discharges under certain conditions called attention to them as the cause of the hepatitis. This was further emphasized by the fact that the contents of these abscesses do not contain bacteria.

Since much emphasis has been laid upon the relation which exists between dysentery and liver abscess one is apt to lose sight of the fact that there are latent and marked infections of the bowel with amebae unaccompanied by any dysenteric symptoms, indeed, quite the opposite. In some cases it is impossible to demonstrate the organism in the stool but it may be recovered from the abscess.

2. *Predisposition:* All writers agree amebic abscess of the liver is more common in foreigners than in the people native to the tropics, that it occurs more frequently in males than females and usually manifests itself in adult life although our series includes cases varying from ten to eighty-six years.

Alcohol by some writers is given a prominent position among the predisposing factors in liver abscess, by some equally qualified to express an opinion it is not considered of great moment. In our series of cases alcohol was not a factor of any importance.

Occupation is of little importance.

In the United States amebiasis is endemic, the largest series of cases in addition to those from the Southern States having been reported from Maryland and New York State.

The time between infection with amebae and the development of the abscess varies greatly. Some cases apparently develop symptoms of abscess concurrently with a dysentery. In others years may elapse—over fifty in one case of this series.

3. *Pathology:* From the bowel amebae pass to the liver by way of the portal vein, any other channel being unusual, although their presence in the gall bladder (demonstrated by Crowell in Manila and recently by Dr. Herbert Gunn) in the bile and ducts as well, shows that even in cases free from abscess the liver is involved. Where abscess results the organism produces a congulative necrosis of the liver cells resulting in a structureless granular debris which later liquifies and forms a ragged-walled abscess cavity more or less spherical in form. At first of small size, the cavity enlarges by an extension of the necrosis if the abscess is solitary or by the union of two or more necrotic areas from breaking down of intervening partitions of damaged liver substance where more than one focus is present.

The size of the abscess varies greatly, being at times limited only by the size of the liver which has been converted into a sac of broken-down necrotic tissues. In cases of multiple abscess their size is generally less. From single abscesses we have drained between three and four liters of material.

Formerly amebic abscess of the liver was regarded as occurring singly, but more complete statistics given by observers in various countries show they may occur in great numbers, cases being on record where the abscesses could only be counted with difficulty. Single abscess cavities apparently predominate, the proportion being about three or possibly four to one.

The majority of abscesses occur in the right lobe of the liver, as one would expect from a consideration of the relative size of the lobes. Of this lobe the upper portion is most frequently affected, then apparently the lower.

When an abscess is centrally located and completely surrounded by liver tissue that has undergone little or no change the structures surrounding the liver are not altered. When, however, an abscess approaches the surface of the liver processes are set up which result in a reaction on the part of contiguous structures. Adhesions are of frequent occurrence, though they are not always found even in the case of a very large abscess separated from the liver capsule by only a thin layer of liver tissue. Where changes are set up in neighboring structures their symptoms may be of diagnostic value, irritation of the diaphragm in an abscess of the upper portion of the lobe, for example, producing cough and later signs in the right base from extension of

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

the inflammation and involvement of the lung tissue.

In our cases of abscess situated toward the lower part of the liver the adjoining viscera in the upper abdomen have been found firmly adherent to the surface of the liver, so firmly at times that the abscess was inadvertently opened when attempting to separate the adhesions.

The content of an amebic abscess is practically diagnostic. When evacuated it is thick, creamy but not homogeneous. Of a dark chocolate-brown color it contains lighter colored particles varying in size from minute flakes to good sized lumps of a yellowish shade. There are usually present streaks of brighter blood as well as numerous darker blood clots; at times bits of necrotic liver tissue. The odor of the freshly evacuated pus is not offensive unless the colon bacillus has gained a foothold, when the entire picture is modified.

Microscopically the pus is largely made up of broken down liver tissue and granular debris. Red blood cells are numerous, leucocytes and often crystals. The pus is bacteriologically sterile in the majority of instances. Amebae may be present though not always in the first pus obtained. When not encountered at once they are often found in the discharges after one or two days when the material lying close to the walls of the cavity is extruded onto the dressings.

4. *Symptoms and Physical Signs.* At times the patient's symptoms and physical signs point definitely to the seat of trouble. This is by no means the rule, however, and often this disease is diagnosed only by elimination. Both objective and subjective features of the disease present in great variety and no one sign or symptom may be considered pathognomonic. Further we have encountered cases of good sized abscess where there were slight if any symptoms.

As was mentioned above, a history of dysentery is not necessary nor does its absence rule out infection by the organism. On the contrary, it should be well understood that amebae may be present in the large intestine with more or less regularity of the bowels or even constipation, or with the production of disturbances referable to the digestive tract higher up.

When a history of dysentery is given, the time at which this occurred previous to the symptoms of an abscess may vary greatly, the shortest period to elapse in our cases being two weeks, the longest fifty-two years. Further, the period of acute symptoms varies greatly in different individuals, from a few days to three or four months; the symptoms themselves varying from slight discomfort to complete incapacitation.

Cases of well developed abscesses may show all the symptoms and signs pointing definitely to the liver condition, while on the other hand cases of equally developed abscess fail to reflect the characteristic picture.

Among the important symptoms usually considered to make up the picture of an hepatic abscess are fever with or without rigors, sweating, gastric disturbances, pain, cough and jaundice.

Apparently there is no characteristic fever in liver abscess. Fever of a remittent type was present in the larger number of our cases, the elevation at no time being extreme. Some cases showed a practically normal temperature with well developed abscesses. In none of this series of cases was a marked rigor noted. Several patients complained of chilly feeling at times but this symptom apparently deserves no special prominence.

Of possibly greater importance is sweating. This symptom may be unnoted unless marked. Most patients show some excessive skin moisture, very often at night. The last three cases of our series have had marked sweating, two of them saturating the night clothing and bedding.

Associated disturbances of the upper gastro-intestinal tract may at times obscure the diagnosis. These result from pointing of the abscess downward, accompanying inflammation of a portion of the lower surface of the liver with involvement of neighboring viscera by adhesions. In addition to the actual liver involvement, amebae in at least some instances involve the lining of the gall bladder. Crowell first called attention to this and recently Dr. Herbert Gunn and I have demonstrated this in five cases in which this organ was removed in the treatment of amebic disease. In these cases amebae were demonstrated not only in the mucosa of the gall bladder, but in two in the drained bile from the ducts after operation.

Gastric disturbances such as nausea with or without actual emesis are not unusual. In one case of an abscess pointing toward the epigastrium in a man of eighty-six with signs of increasing pyloric obstruction accompanied by vomiting, an exploration was done for a possible malignant disease of the stomach. Draining of a large amebic abscess and freeing of adhesions cleared the condition completely with cessation of all symptoms.

The pain in abscess of the liver is important though it may vary from a full feeling in the hepatic region to sharp prostrating pain of usually an intermittent character. Pain again is modified according to the nearness of the abscess to the liver surface and, more important, to the portion of surface involved, the involvement again affecting neighboring structures. An upward pointing will involve the diaphragm with discomfort referable to irritation of this structure, for example. This not only produces respiratory modifications but is increased by heightened diaphragmatic action—such as in coughing. Pain further may be of the referred type to the back, shoulder and scapular region.

On the other hand it must not be thought that liver pain indicates abscess. In cases of dysentery apparently without abscess the patients have complained of a sense of fullness in the liver region and in at least one the patient could foretell his exacerbation of dysentery by a sense of fullness and weight in the upper right abdomen pointing to liver involvement. In many cases the discomfort in the liver region is increased by the taking of food.

In a case of liver abscess at present under treatment cough has been a most persistent and annoying symptom. In over a fourth of our series cough has been present. While most of these cases have shown secondary diaphragmatic involvement, in some the abscess has pointed downward. In these probably the general hepatic distension has been the cause.

The appearance of the patient varies greatly within wide limits. Some are ill and show every indication of it. Others show but little. On examination the most important sign is increase in liver dullness. The direction of this increase depends again on the direction in which the abscess points. In the majority of our cases a definite tumor was felt below the right costal margin and when the abscess was large and the intervening abdominal wall thin, fluctuation could be elicited. With the edge of the large liver felt below the ribs, pressure and percussion over it usually causes pain, and an increased rigidity of the superimposed musculature is generally present.

With an upward enlargement of the liver the X-ray is an important aid to the physical findings. The dome-shaped increase in the involved lobe is often quite striking, as shown in comparison to the opposite diaphragmatic curve.

While liver enlargement is important it must not be forgotten that abscess may occur with no appreciable increase in size of the organ. In some of our cases no change in liver bulk was noted and in at least one with a central abscess this remained undiscovered at an exploratory operation as there was nothing present to call attention to the liver.

With well advanced abscess some degree of jaundice is usually observable. This may be slight and only noted after the patient is convalescent. Then the improvement in color will often emphasize the fact.

Pulmonary symptoms and signs are often of importance. The former—pain, cough and dyspnea are frequent. The signs vary from those of a slight congestion to complete consolidation of the right base. In five of our cases the abscess ruptured into the lung, one following an operation.

A low leucocyte count is apparently the rule in tropical abscess of the liver. Twenty-one of twenty-eight of our cases examined showed a count below fifteen thousand, only two cases having a count above twenty thousand. One case showed a count below four thousand with 79 per cent polymorphonuclears. This case recovered promptly after drainage of a large abscess of the right lobe.

The differential count does not assist us, as this apparently varies within wide limits.

5. *Diagnosis:* Probably none of the so-called tropical diseases is so frequently overlooked as is liver abscess. Given a case with a history of dysentery, with progressive emaciation, drenching sweats, a sense of weight or fullness in the lower costal region, rigors, cough and, on examination, furred tongue, an enlarged tender liver, fullness of the side and a leucocytosis, and the diagnosis is plain.

On the other hand the symptoms and physical findings may present in great variety. No one finding may be regarded as positive and too often the sum of all the signs leaves us puzzled. Indeed it is not uncommon to encounter cases with well developed abscess exhibiting few if any marked symptoms, local or general. We have drained large abscesses in cases of exploration where a positive diagnosis could not be made. Too great emphasis cannot be laid on an exhaustive study of the case. Exploration of the liver with a needle should be resorted to in doubtful cases. This procedure is safe and easily accomplished and does no harm. In fact certain good may result in cases of hepatic congestion.

Of the conditions requiring differentiation three classes exist. (1) Other diseases of the liver and bile passages. (2) General conditions associated with an enlargement of the liver and (3) diseases of adjoining structures.

In the first group occur syphilis, especially the luetic liver with one or more large gummata; malignant disease presenting as large semi-necrotic growths; hydatid disease, particularly those cysts which have become infected; malarial hepatitis; suppurative disease of the liver, the gall bladder and bile ducts. Appropriate clinical and therapeutic tests indicated in these conditions should serve to differentiate the greater number of cases.

In the second group occur the anemias and other blood diseases associated with hepatic enlargement.

In the third group are cases of restricted empyema, subphrenic abscess, abscess of the abdominal wall and diseases of the right kidney producing an enlargement of the organ.

Too great emphasis cannot be made on careful and repeated examination of the stools in a case suggesting liver involvement. The discovery of amebae at once suggests the possible condition.

6. *Complications:* In cases where the abscess has drained itself through the diaphram and pleura and ruptured into a bronchus the picture may be obscure. Not always has the character of the sputum been diagnostic as regards amount and appearance. Gunn and I have two cases under treatment at present where the sputum has differed at times very little from that produced in an ordinary bronchiectatic cavity, or in tuberculosis. The early X-ray findings were not such as to point to abscess. Later there was shown enlargement of the liver but no infected tract was demonstrable from the liver to the lung. In each of these amebae were demonstrated in the sputum and the diagnosis thus established.

Rupture of the abscess may occur into the peritoneum where insufficient adhesions have been formed to limit the process. Rupture has occurred into the gastro-intestinal tract. In one of our series what appeared at first to be an abscess of the prostate developed until an opening was necessary midway between the umbilicus and pubes. The pus was typical of liver abscess and contained amebae. With the subsidence of the inflammation an indurated tract could be felt beneath the right abdominal wall extending from

the lower surface of the liver to the mass in the pelvis.

7. *Treatment:* The treatment of this condition is surgical where the abscess has attained any marked size. Treatment of the hepatitis before the formation of an appreciable abscess cannot be too strongly insisted upon. In addition to local and symptomatic treatment this consists of emetine in connection with neosalvarsan as emphasized by Gunn.

The surgical procedures vary from simple aspiration to free drainage of the abscess cavity. Whatever form of treatment be instituted, sufficient relief from pressure within the abscess must be obtained to restrict absorption and arrest spread as evidenced by a lessening or cessation of the symptoms.

Personally we have had little experience with any but the larger surgical measure of exposing the liver, exploring it directly and freely draining the abscess. Two main routes are available, the first one through the chest wall, and the second, and we believe preferable, through the abdomen. Objections to the transpleural route are that it exposes but a limited portion of the right lobe and if the abscess is not situated in this immediate region it may be difficult of access; also subsequent trouble with the pleural surfaces and adjoining lung is not unknown.

In our experience more satisfactory results have been obtained and a better exposure is possible when the abdominal route is followed. Another important consideration favoring this route is the opportunity for exploration of the gall bladder, bile ducts and appendix. This is of great importance when we now know, as stated above, that these structures may be the seat of amebic infection and inflammation.

We have been accustomed to use an upper right rectus incision through which the entire liver may be palpated. If the abscess is not obvious the liver may be explored in all directions by an aspirating needle and glass syringe. Once the abscess is located, a special trocar, modified from Oschner's gall bladder instrument, is pushed into the cavity. A rubber tube sufficiently long to pass into the neck of a bottle at the side of the operating table is connected to the outflow tube of the trocar and usually the creamy, brick-red pus flows freely. If the flow is not free we attach a large glass syringe to the tube and draw out the pus until the cavity is emptied as completely as possible.

The trocar is now separated by unscrewing the outer portion bearing the outflow arm and piston and leaving the longer distal tube within the cavity. A special stylet with expansible end is now fastened into the projecting end of the tube to act as a handle and over this is passed a rubber tube with rounded edges similar to the end of a stomach tube. This tube hugs the metal trocar tube and is gently forced along the latter until it enters the abscess cavity, when the remaining portion of the trocar is removed by pulling upon the stylet. This leaves a rubber tube of large caliber extending from well within the abscess cavity to a distance of several inches outside the abdominal wall. During all these manœuvers of course only the immediate surface of the liver is exposed at the point of drainage, the rest of the liver and abdomen having been thoroughly walled off with gauze. By this method there is no escape of pus and soiling of the peritoneum.

In this connection some writers have advocated a two-stage operation, exposing the liver surface and packing down to this to cause protective adhesions. The actual drainage of the abscess is then performed one or two days later. We have always performed the entire operation in one stage and have experienced no trouble as the pus in the great majority of cases is free from bacteria.

The wound is closed about the drainage tube after surrounding the latter with gauze strips impinging upon the liver surface, and the tube connected by a glass cannula to a second tube leading to a bottle that is suspended from the bed frame at one side. In this manner large amounts of drainage are collected in the vessel and frequent changes of dressing and wound soiling obviated.

If the abscess is efficiently drained there will be immediate improvement in the symptoms. The subjective sensations will moderate, previous fever will drop and a leucocyte count fall. Should this not eventuate, drainage is insufficient or incomplete and the presence of another collection must be thought of.

Following operation with drainage emetine should be used. It seemed in our cases to hasten the convalescence and apparently to exert a favorable influence upon the condition by causing the amebae to disappear earlier from the drainage.

In those cases where rupture of the abscess has occurred into the lung some are cured spontaneously. In others supplementary drainage below may be required.

CONCLUSION.

1. Amebiasis and resultant abscess of the liver is by no means confined to the tropics. It occurs not uncommonly in the United States. In California several cases have come under our observation which have never been outside the state.

2. In addition to causing abscess of the liver the ameba is able to set up changes in the mucous membranes of the gall bladder, bile ducts and appendix. It is possible that every case infected by amebae harbors the organism not only in the intestinal tract but the liver and bile passages even when no gross pathological changes are produced in these structures.

In incurable cases of intestinal amebiasis Gunn has demonstrated the organism in the mucosa of the appendix, gall bladder and excreted bile after cholecystectomy.

3. No sign or symptom is characteristic of the disease. It is only by a careful consideration

of all available data and often by elimination that the correct diagnosis is reached.

4. The prognosis with the institution of early treatment is encouraging. A complicating dysentery renders it less favorable. In our earlier cases the mortality was about 30 per cent. In our later cases this has been considerably reduced.

TREATMENT OF BLADDER TUMORS BY RADIATION AND FULGURATION*

By R. L. RIGDON, M. D., San Francisco, Calif.

I began the use of radium in tumors of the bladder about one year ago. Since that time eight patients have been under treatment. Some of the patients have had radium alone, some radium with fulguration and some fulguration only. The diagnosis was made by cystoscopic examination.

In none of the cases was any tissue excised for histological study. It is realized that this omission was a very serious handicap in any study of the efficacy of the radium rays in specific types of tumors, but on the other hand, obtaining of worthwhile specimens is attended by considerable traumatism, which, to say the least, does not add to the comfort of the patient. Moreover, in making microscopic studies of specimens, our attention is always called to the fact that a tumor may show a normal arrangement of its elements in the greater part of its extent, and cancerous changes in only a small section, and this section is by no means always the base. It, therefore, seemed wise not to obtain specimens that histologically might be misleading, but instead to depend upon the percentage relation of the various forms of tumors and their response to treatment.

None of these patients has been treated over a sufficient length of time to warrant any statement as to complete cure. It is well known that these tumors have marked tendency to recur, as has been illustrated in two of this series.

Case 1. Age 72, widow. Referred by Dr. W. F. Cheney. First seen September, 1919. Her illness began about 1911, manifesting itself by hematuria. Has had repeated attacks ever since.

At the date of examination she had a very intense cystitis, superimposed upon the bleeding. Cystoscopy showed a rather large tumor, springing from the left ureteral orifice and spreading across the floor of the bladder to the right ureteral orifice and cauliflower in appearaance. A small tumor was located near the summit of the bladder.

Fulguration was begun and continued at intervals until December, 1919. At this time cystoscopy showed the tumor had disappeared, leaving in its site an area very much resembling an ordinary inflammation. So much was this the appearance that a consultant who saw it at this time rather expressed a doubt if there had ever been a tumor, but that the whole process might have been inflammatory.

The patient went home and returned for examination in May, 1920. At this time there had been marked recurrence, which was now characterized by multiplicity. Small tumors were scattered over the base and lateral walls. Radiation and fulguration have been employed since that time, radium having given much the more satisfactory results. About 2300 mg. hours of radium have been applied.

Today the patient is symptomatically comfortable. The tumors have all disappeared except a very small one on the right base. This is now so small that only by careful inspection can it be seen.

Case 2. Age 64, widow. Referred by Dr. W. A. Banks. First seen August, 1920. Dates her illness from 1917, when she had an attack of hematuria. Has had repeated attacks of bleeding since that time, with frequent urination. The hemorrhage has been so profuse that the patient was very much exsanguinated with the usual symptoms of dyspnoea, etc.

Cystoscopy showed a cauliflower-like growth on the right side of the bladder base, surrounding the right ureter and about the size of a large walnut. Between the date of the first visit, August, 1920, and December, 1920, 800 mg. hours of radium was used.

The last cystoscopy made in November, 1920, showed the tumor had shrunk to a very small mass. All the patient's symptoms had disappeared. She was able to resume her duties as housekeeper. Her exact condition at the present time is not known, as she has not returned for examination.

Case 3. Age 56. Female. Referred by Dr. Geo. P. Hall. First seen July, 1920. Present illness dates back about one year. Its onset was marked by hematuria. Has had repeated attacks since.

Cystoscopy showed a small tumor apparently protruding from a slightly patent urachus. No other abnormality was present. This tumor was fulgurated on four occasions. Its location made intravesical approach rather difficult, but the patient very decidedly objected to an operation. At the last cystoscopy the tumor had disappeared and the patient was feeling well.

Case 4. Age 57. Male. Referred by Dr. Wm. Quinn. First seen January, 1921. Present illness began four years ago. Its onset and course were marked by hematuria and frequent urination.

Cystoscopy rather unsatisfactory, but a large tumor could be seen occuping the right lateral wall and encroaching upon the ureteral orifice. It was felt that this tumor was unfavorable for radiation or fulguration, but since surgery offered an even less chance for relief, radiation was advised. Up to the present time 1800 mg. hours of radiation have been applied. The patient feels well except for a persistent frequency of urination. There has been almost no bleeding since the first treatment.

Case 5. Age 56. Female. Referred by Dr. Geo. P. Hall. First seen July, 1920. Her present illness began in 1918, manifesting itself by urinary frequency and hematuria. These symptoms persisted.

Cystoscopy revealed a small pea-sized tumor on the right posterior wall, well back of the ureteral orifice. The tumor was fulgurated on July 15 and September 13. On the latter date cystoscopy showed the tumor had practically disappeared. Its base was slightly fulgurated.

The patient returned for examination February 12, 1921. At this time the cystoscope showed the tumor had returned and was a little larger than when seen the first time. Fulguration was done. Examination on March 14 showed the mass very much reduced. It was again fulgurated. The patient is comfortable and has had practically no bleeding since the first fulguration.

Case 6. Age 76. Male. Referred by Dr. F. E. Gallison. First seen February, 1921. His symptom of hematuria began one year ago and this symptom has persisted; the bleeding has become quite profuse. The diagnosis of bladder tumor was made by Dr. Meade, who recommended operation rather than radiation. At my examination the tumor

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was found exactly as described by Dr. Meade. It was broadly pedunculated, solid and about the size of a small walnut. It was located just back of the left ureteral orfice.

Owing to its position and the uncertainty of permanent relief by means of surgery, radiation was advised. This has been carried out; 400 mg. hours of radium have been used. On March 26 the size of the tumor was much decreased. The remaining small mass was fulgurated. The last cystoscopy was on April 27; at this time the tumor had almost entirely disappeared. The patient has no bleeding and is feeling well.

Case 7. Age 71. Male. Referred by Dr. F. B. Carpenter. First seen January, 1921. Symptoms had been present for two years, consisting of marked hematuria. He had been through a course of fulguration at a local hospital without relief.

Cystoscopy showed a growth which surrounded the vesical orifice and apparently involved the prostate. Because of the profuse bleeding a good examination was not possible.

On January 10. 1921, he was given 400 mg. hours of radiation. The patient has not returned for further treatment. His physician reported that he had a marked systemic reaction, which lasted for a number of weeks, but which finally subsided. His bladder symptoms were markedly relieved.

Case 8. Age 47. Referred by Dr. I. W. Thorne. Consulted me December, 1920. Patient stated that for two months he had observed a reddish discharge at the meatus at the close of urination. He was treated for two months by irrigations and massage before a cystoscopic examination was made. Cystoscopy, February 5, 1921. This revealed a small tumor just posterior to the right ureter, raspberry-like in form and rather soft. Since that date 300 mg. hours of radiation have been given by holding the element in direct contact with the tumor. On March 26 the tumor remained about the same as in the beginning; at this time fulguration was done. On April 21 the mass was much reduced in size.

In 1908 Watson and Cunningham published their system of Genito-Urinary Diseases. This antedated the effective use of fulguration or radium. In Volume 1 is given a comprehensive review of the then status of tumors of the bladder; their conclusions as to prognosis are voiced in the following words: "Tumors of the bladder, irrespective of their nature, cause the death of all patients, pactically speaking." As contrasted with this appalling helplessness of medicine or surgery, at even so short a time ago as 1908, we may compare the following extract from an article by John P. Geraghty in the Southern Medical Journal, 1920, Volume 13, No 7. He is reporting upon 170 cases of bladder tumors, treated during the preceding four years and a half. He says: "It has been our experience that all the papillomata, either benigh or malignant, together with the early carcimomata, usually respond to vigorous radiation. The more malignant the tumor, the greater amount of radiation required to affect its disappearance."

We thus find in twelve years—from 1908 to 1920—a marked reversal of opinion as to the amenability of bladder tumors to treatment. This radical change was brought about by the increasingly efficient use of fulguration and radium.

Upon reviewing the reports of the various surgeons, we find a very general agreement upon some essential points:

(1) For therapeutic purposes bladder tumors are divided into Papillomata, Carcinomatus Papillomata, Papillary Carcinomata, Carcinomata.

The other varieties of tumors are rare.

(2) Papillomata, either benigh or malignant, respond very readily to fulguration or radium. Carcinomata are not readily influenced by either fulguration or radiation.

(3) There is a marked tendency to recurrence after fulguration. This necessitates frequent examinations.

(4) When recurrence occurs, it may be in form much more amenable to fulguration than was the original tumor.

A summary of my own eight cases shows:

Three were treated by radium only.

Two were treated by fulguration only.

Three were treated by fulguration and radium.

All of the patients have shown marked improvement of symptoms. In seven there has been a marked decrease and in three of these an apparent disappearance of the tumor. In one the tumor probably remains unchanged. It is too early to talk of permanent cures. A subsequent report may show the ultimate results.

PERIPHERAL NERVE SURGERY *

By CHARLES L. TRANTER, M. D., San Francisco

A great advance has been made in the treatment of peripheral nerve lesions, due to the peculiar conditions afforded by the recent war. Special hospitals were established, where large numbers of patients were kept under observation for prolonged periods, affording opportunities never before provided. Our ideas concerning the relative value of different points in the examination of nerve injuries have been clarified, and it has been definitely shown that the direct end-to-end suture is the logical procedure, and that it is usually possible.

In a discussion of peripheral nerve surgery the questions of diagnosis and of post-operative treatment must be given the same prominence as the operative procedure itself.

1. *Diagnosis.*

The question of diagnosis is not merely concerned with the decision between operation on the one hand and conservative treatment on the other hand, but it concerns the surgeon after he has exposed a lesion and must decide between a neurolysis and a resection and suture. There is no more difficult problem than this decision after a lesion consisting of a nerve enveloped in a mass of scar tissue has been exposed. The surgeon with whom this responsibility rests must know whether there are signs indicating the penetration of neuraxones through the lesion. Only as the result of personal examinations can the operator make intelligent decissions in a considerable number of nerve lesions.

Recently it has been realized that certain signs are of greater significance than others; and furthermore, a few signs which were formerly thought to be of great value are now realized to be of little help in arriving at the diagnosis. It is now known that the chief practical value of the electrical reactions when dealing with peripheral

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nerve cases is in the differentiation between functional and organic cases. Certain new signs have been added as a result of the war experiences.

The examination with regard to voluntary motion, sensibility, the formication test, and muscle reflexes can not be too carefully carried out. On account of the importance of these signs, the following statements concerning them are made. The other signs, such as attitude, tendon reflexes, atrophy, trophic disturbances, and the electrical reactions should not be neglected.

(1) The Examination of Voluntary Motion. This can not be too carefully carried out and the functions of individual muscles should be carefully tested, both looking for contraction and feeling for movement of the tendon. The proper position should be chosen and the influence of gravity and friction should be guarded against by the use of smooth, powdered surfaces as supports for the limb.

(2) The Examination of Sensibility. Here the use of standard methods is necessary and it has been found of great practical advantage to adopt arbitrary methods. In the Army a small camel's hair brush was used for the detection of tactile sensibility, while the instruments designed by Ingham were adopted for the estimation of pain and pressure sensibiliity. These instruments consisted of a needle esthesiometer controlled by a spring so that pressure of 15 grammes can be given. This is sufficient to cause a sensation of pain, but not visibly to indent the skin. For the estimation of deep pressure an esthesiometer capable of exerting 1000 grammes on a surface equal to a quarter of a square centimeter is used. There is more or less variation in the sensory distribution of different nerves which must be allowed for. There are certain points, however, of great advantage. For example, with a loss of pain and touch sensibility, including the whole area supplied by the ulnar nerve, the presence or absence of sensibility to pressure of 1000 grammes in the little finger alone may distinguish between a partial and total interruption.

(3) The Formication Test. This test, also known as Tinel's sign, is still not understood by all and is very frequently misinterpreted. It may be the only sign to indicate whether or not axones have penetrated a scar-enveloped or neuroma-containing nerve exposed at operation. This sign may be defined as the presence of formication in the cutaneous sensory distribution of the nerve elicited by mechanical stimulation of regenerating axones by pressure or percussion over the nerve trunk, either at or below the level of the lesion.

This test tells us many things. When no formication is elicited at a level lower than that of the lesion after some two or three months, it indicates absence of regeneration and thus surgical intervention. If the rate of regeneration and the intensity of formication are not normal, operation is likewise indicated. If the scar-enveloped nerve or a small neuroma in continuity is exposed at operation, and if this nerve be one in which regeneration is difficult, the presence of satisfactory formication below the lesion would indicate a neurolysis; while the absence of formication would indicate resection and suture.

After operation regeneration can be followed from month to month by the descent of formication, a most comforting thing to patient and surgeon alike.

(4) *The Muscle Reflexes.* We have three trustworthy indications for regeneration which appear in the following order: (a) satisfactory descent of formication; (b) the reappearance of normal muscle reflexes, and (c) the return of voluntary motion. These muscle reflexes are contractions in the whole muscle or in a division of the muscle, and are not to be confused with the small localized contractions called idiomuscular contractions, and which signify degeneration of muscle.

In following a post-operative case or one in which spontaneous regeneration is occurring, we first have descent of formication and then, with the penetration of motor fibres into the muscle, we begin to get return of muscle reflexes. This happens from a month to three months before the return of voluntary motion, but with the re-appearance of muscle reflexes we can rest assured in almost every case that we will get restitution of function to a considerable degree.

Thus we have added to our armamentarium an extremely valuable and reliable sign of impending return of motion.

(Concluded in July)

ORGANIZED MEDICINE FOR THE MASSES A FEATURE OF PRESENT-DAY MEDICAL PRACTICE*

By E. W. CLEARY, M. D., San Francisco

I will discuss Medical Organization from the viewpoint of a doctor, and also in so far as professional bias will permit me to get his position, from the viewpoint of the layman who desires the best that modern medical science can offer.

At the opening of the Cleveland Clinic, Dr. Wm. J. Mayo said: "Our failures as a profession are the failures of individualism. Medicine's place is fixed by its service to mankind. If we fail to measure up to our opportunity, it means State

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Medicine, Political Control, Mediocrity, and loss of professional ideals."

Medical practice has passed in two decades from the jog trot era of the horse and buggy to the frenzied era of the high-speed motor car and the aeroplane. Increase in scientific details and in cost and complexity of equipment has been proportionate to increased rate of transportation. The doctor of twenty years ago was hard worked. His mental capacity was heavily taxed. Medical men of today are as well endowed mentally and physically as their predecessors, but the capacity of the human brain has not changed. Doctors are not today equal to seeing several times as many patients, considering twice as many details on each case, and covering at least five times as much literature as their fathers did in the same number of hours. They become too jaded to cerebrate. Mechanical routinism is the natural outcome.

Dr. Vaughan of Ann Arbor has pointed out that rural practitioners made many contributions to medical knowledge during the first three-quarters of the last century. Since that date, practically all important contributions have come from large centers. Discoveries are not now being made by individual practitioners, because individual practitioners have become too busy to think, and have lost to a lamentable degree the habit of observation.

Specialization and co-operative effort seem to be the only solution. The individual practitioner is taking refuge in co-operative organization from a situation with which it has become impossible to cope satisfactorily single-handed.

Large centers have, for a long time, experienced more or less of the good and evil of group practice. Staffs of medical colleges and of hospitals and loose, unorganized groups of specialists referring cases within their small cliques are more or less imperfect forms of group practice. Now the co-operative type of organization promises to become widespread.

Doctors consider of foremost importance those advantages which enable them to render better service to their patients. A questionnaire was sent to each of twenty-four representative medical groups. Replies were received from nineteen groups scattered in fifteen different states and in the Hawaiian Islands. Sixteen replies named better care of patients as the primary advantage of group practice. The following advantages are claimed for group service:

1. Better service to patients at less expense.
2. Better records.
3. Contact with general field maintained while maximum of energy is conserved for chosen specialty.
4. Freedom from onerous detail of handling accounts.
5. Definite stabilizing effect on income.
6. Relief from unremitting physical and mental strain of individual practice.
7. Leave of absence possible without neglect of patients or demoralization of practice.
8. More influence for good on community standards.

Through the exactions of individual practice the doctor, who, by training, experience and sympathies should be an invaluable civic asset, becomes in many instances a civic nonentity. Insofar as group practice may overcome this situation, it will serve the public well.

Opinion that group organization stabilizes the doctor's income is practically unanimous. That it tends to increase his income is doubtful. Stabilization is the more important advantage. The average doctor does not worry so much because of the amount of his income as because of its instability. Assure him a modest, reasonably stable income and much of the rancor of competitive medicine will disappear.

Some of the worst evils that beset our profession are the result of ignorance of business procedure. Our best medical colleges continue to turn out graduates without instruction in business procedure. Lack of business training often stands between the graduate and the realization of the high ideals which his professors have been at much pains to inculcate.

The timid inefficiency with which many medical men conduct their professional finances makes them easy victims of the unscrupulous. The patient finds it hard to reconcile such manifest ignorance of business with professional capability. Efficient business methods made possible by group organization should commend themselves to both the profession and the public.

Organized medical groups are recognized by progressive employers as a step toward solution of the problems of human maintenance in industry. Clear-sighted business men are quick to see the advantage of medical service units capable of providing a high standard of versatile and centralized service. Minimization of time lost for special examinations and simplification of record systems appeal to such men. Compensation insurance carriers welcome the efficient medical group. It minimizes the necessity of taking cases of injured men away from their home communities for treatment, a necessity which both carrier and patient would like to escape.

Group organization will provide many opportunities for recent graduates fresh from research laboratories to associate themselves with older men who have become engrossed in routine practice. These contacts will result in more frequent and more productive pilgrimages of the practicing doctors to the centers of scientific thought. Research men being brought closer to practical problems will, with greater patience, seek to make their discoveries applicable in general practice. Thus group practice will tend to make the practitioner more scientific and the research specialist more human.

No objections to group practice will stand if group organization works out for the public good. Dr. Lewellys F. Barker has reviewed the objections to group practice in an article published in the Illinois Medical Journal of January, 1921.

After considering objections on the ground of superfluousness, cost, inhumanity, cliqueism and commercialism, Dr. Barker concludes that there is little fear that group practice will foster meanness or baseness, and, on the contrary, that it will probably raise medical practice to a higher and more honorable level.

Efficient suburban and rural groups will, to some extent, effect a decentralization of medical service. Cases too difficult for solution by local groups will continue to be sent to greater consulting centers.

Objection that group practice tends to submerge the individual and to destroy the intimate relation between doctor and patient does not necessarily hold. By placing sufficient stress upon the cultivation of the personal relation and by making that function a major responsibility of one of its members or departments, the group may promote rather than diminish this fundamental characteristic of good medical practice. Departments of physio and occupational thereapy will be a feature of many groups and will do much to develop a sense of personal interest in such patients as may properly be referred to such departments. Dr. Gilcreest intends to discuss before the Industrial Section the application of physiotherapy and occupational therapy in Hahnemann Hospital of the University of California, where these departments have done much to promote confidence and cheerful optimism among industrial patients.

Three plans for financing groups are popular: (1) Financial equality; (2) Sliding scale based on annual adjustment according to individual earnings; (3) Stratification of group into three levels —(a) Controlling members dividing net earnings equally; (b) Participating members receiving salary, plus percentage proportionate to length of association with group; (c) Salaried assistants. Professional equality in groups is evidently the rule. Most groups have centralized offices, centralized record filing systems and salaried business managers.

Dr. V. U. Leonard of Duluth (Journal of the American Medical Association, February 12, 1921) gives a comprehensive classification of types of group practice. The co-operative type is most popular. Wide extension of this type of group, based upon equality of members, complete pooling of professional interests and representation of all important specialties, seems likely to occur. Groups of general practitioners are likely to take the co-operative specialty type as their ideal and work toward the perfection of this type.

A coherent service unit, comprising facilities for performing all medical functions concerned with the conservation of the health of every member of the patient-clientele, is the ideal of modern practice. Such groups should exercise a most potent influence in the fields of health—education and preventive medicine. Tremendous possibilities for reducing the economic loss from disease lie in the hands of such organizations. Health-educational sections of such organizations should make use of the columns of the local newspapers. No other equally efficient medium can be found for teaching the laity proper discrimination in matters pertaining to health and medical service. Quacks and charlatans have had almost uncontested use of the press. They continue to delude and rob the public, and the public, lacking discrimination, charges the whole account up to the profession of medicine. Legitimate medicine is in greater peril through neglecting to use the press properly than its professional ideals will ever be through misuse of publicity by regular doctors. We may no longer safely neglect a service so necessary to the enlightenment of the public.

Developments of great moment hinge upon the ability and readiness of the medical profession to organize for service. The rank and file of the profession face the question whether they will by medically planned and controlled organizations meet adequately the medical needs of the masses, or will meet those needs as subordinate functionaries in organizations conceived and controlled by men relatively ignorant of, if not unsympathetic, to the highest ideals of our profession.

Intelligent laymen are out of patience with the perfunctory methods of unspecialized practice, and not less so with that peculiar form of vivisection which passes the patient about within an unorganized clique of specialists. Fear of the impossible expense which ill-health may entail is registering itself in the increasing number of lodges, health associations, etc., which offer a more or less adequate insurance against the medical expense of illness. Membership in such organizations is becoming the rule among the middle classes. The pernicious feature of such insurance is usually failure to provide good medical service. Such organizations frequently contemplate exploitation of the doctors who render medical service for them. Co-operative group medicine, through its business organization and service capacity, may do much to better these conditions.

The ailing individual with limited means should get a better type of service at a less expense; but this result cannot be achieved by giving inadequate compensation to the doctor who renders service. Medicine is an underpaid, not an overpaid, profession. Each well-trained graduate of today has spent at least ten of the best years of his life in special preparation. The degree of doctor of medicine from a first-rate school today represents on a conservative estimate an investment of twenty-five to thirty thousand dollars. Men of proper capacity will not continue to recruit the profession if the dignity of the calling is not conserved by maintenance of an adequate standard of compensation. The cost of producing a first-grade doctor will always be proportionately great. Reduction of cost of medical service must be sought in increased efficiency within the profession through centralization, co-operation and elimination of waste. It must be sought further in co-operative relations between organized medicine and organized units of the patient clientele. Many items of expense go to make the bill the patient pays. Every effort should be made to reduce the total bill with-

out reducing the net income of the doctor or impairing the service. Whatever form organizations of patients take, an adequate due paid by each member for medical service should be turned over without reductions or rebates to the medical organization which actually renders the service. The terms of all such agreements should be such that the opportunity and the obligation to exercise health-educational and preventive-medical functions in the highest practicable degree are given to the medical service organization. Such arrangements may be called contract practice; but our profession must not make a bugaboo of this term. The questions that concern medical men as a profession are: First, Is adequate medical service being rendered? Second, are the doctors who are actually performing this service being paid a compensation sufficient to insure the indefinite continuation of the service at an adequate standard of excellence?

There is a dangerous tendency for individuals both within and without the profession to farm out medical service. Funds collected from the members or from the organization representing the patient are controlled by shrewd intermediaries, corporate or individual, and in large part disbursed as dividends or salaries to promoters, while hired doctors receive inadequate compensation and render perfunctory service.

The laity have a right to form organizations which provide through the payment of adequate dues for competent medical attention to members. Medical service on such a basis is in line with modern ideas of progress and will tend to eliminate great economic waste. Medical groups should lead the public in building up this type of service. To this end the influence of all the professions and agencies engaged legitimately in the functions of preventing disease or healing the sick should be enlisted under the leadership of the medical profession. By such a broad organization, the medical problem of each community should be engaged. Rural and smaller urban communities offer the lesser complicated fields for such development. Once a strong nucleus of organization within the local profession is formed, the co-operation of powerful non-medical agencies in the community should be relatively easy to get.

Under medical leadership in and by the community itself should all the medical facilities for its non-indigent populace be provided. Provision of community hospitals, laboratories and technicians by the State discussed by Dr. Frank Billings and Dr. Victor C. Vaughan in recent articles, would take from the control of the medical profession practically all plants, equipments and technical facilities necessary to medical service. The operation of this plan would soon lead to absolute and complete control of medicine by the State. The end would probably be disastrous alike for medicine and public.

Group formation is the first step toward efficient stable adjustment of medical service. Organization of patient clientele is logically and unavoidably the next step. Machinery must and will be evolved whereby the man of moderate means may, by the regular payment of a modest due or premium, be able to protect himself and those dependent upon him against the catastrophe of serious illness with its attendant curtailment of earning capacity and its overwhelming expenses. When in his emergency a costly service must be rendered to the patient, no one will seriously contest the doctor's privilege or undertake his responsibility. What type of agency do you choose to have make the terms upon which you will deliver such service? Shall it be service organizations of medical men themselves, carefully planning and unselfishly working with the wisdom of special training and experience toward an end which will conserve the health of the public and the highest ideals of our profession? Shall it be great insurance corporations, organized for profit? or shall it be departments of government, mayhap, controlled by men untrained and unlearned in the profession whose services they seek to direct?

177 Post Street, San Francisco.

THE ENDOCRINES AND THEIR INFLUENCE ON THE SKIN.*

By ANSTRUTHER DAVIDSON, C. M., M. D.,
Los Angeles,
Senior Dermatologist, Los Angeles County Hospital.

Endocrinology is a fascinating subject. Exact knowledge of it is limited, and much latitude is available for speculation. Some of our colleagues are obsessed with the dominant importance of the endocrines and give it a primary place in their diagnosis, while others class the whole practice as the greatest fraud of the century.

The influence of the endocrines on life Shakespeare has enshrined in his seven ages of man, from the infant dominated by his thymus, "mewling and puking in its nurse's arms," to the lean and slippered pantaloon, passing into his senility with the general failure of his endocrines.

Man is as old as his arteries and as efficient as his endocrines. To the better understanding of my point of view it is necessary to consider for a moment the embryology of the skin and its relation to the endocrinal glands. From the ectoderm, or outer layer of the embryo, the skin, nerves, the anterior pituitary and the medullary portion of the adrenals are developed. Though skin and nerves are developed from the same embryological layer, they function very differently. The nerve cells of the higher centers never regenerate and probably undergo little or no change in internal structure during the life of the individual; any changes they do undergo are solely due to the pathology of the interstitial tissues. This fixity of structure is probably the reason why the nerve cells are immune to disease; we have no diseases of the nerves. It is very different with the skin, the cells there are being continually shed and replaced. This very activity of function is a source of strength in reparation and of weakness in dysfunction.

It has long been noted that individuals developing locomotor ataxy have usually shown few or fugitive skin lesions, and some authors are in consequence disposed to consider locomotor ataxy a

* Read before the Los Angeles County Medical Society, April 21, 1921.

result of an infection by a neurotropic variant of the common spirochæte. This assumption I think is not necessary. As the skin and nerves are developed from the same somatic layer, it is reasonable to suppose that if the one suffers severely the other escapes. Nature, like every other efficient agent, does but one thing at a time. The law of compensation holds strongly in the ectodermal structures. A well-developed brain is not commonly associated with well-developed skin structures. Beauty and brains are rarely combined. Cranks have frequently flowing locks, and the name of "long hairs" is physiologically appropriate. Follow this embryological evolution a little further and you will note that the endocrine glands that most markedly affect the skin are developed from the same embryological layer. Foremost among these glands are the adrenals, the medullary portion of which when destroyed by disease produces the bronzing of the skin, so conspicuous a feature of Addison's disease. Addisonismus, a minor form of this affection, is characterized by symmetrical patches of pigmentation, commonly known as chloasma and is not uncommon in early life. It is probably due to partial destruction of the adrenals, for it is most frequently observed in patients with tuberculosis or hereditary syphilis. The chronic lesions of acquired syphilis are characterized by a coppery pigmentation, in all probability due to the influence of the disease on the adrenals. Arsenical pigmentation is, in like manner, due to the inhibition of the adrenal secretion by the arsenic. The "nitroid crisis" that sometimes follows the administration of arsphenamine suggests the sudden arrest of the adrenal secretion, with its consequent disturbance of the sympathetic and arrest of the oxidation of the blood. This death-like condition, as you know, is promptly remedied by the administration of adrenalin.

In animal experimentation pregnancy is associated with an increase in size of both the pituitary and adrenal glands; whether or not this is merely compensatory has not yet been determined, but pregnancy, as we know, is associated with increased pigmentary deposits in the skin. A like increase in size is found in those glands in animals fed on food defective in vitamins. This deficiency in vitamins is an important factor in the production of pellagra, and it seems significant that the tissues most seriously involved in pellagra, viz., the skin and nerves, are developed from the same somatic layer. The whole train of symptoms in pellagra suggests serious dysfunction of the adrenals. It has never seemed rational to me that mere temporary deficiency of certain qualities in the food could lead to the fatal issue we see so frequently in pellagra. In other deficiency diseases, such as scurvy and rickets, the symptoms are promptly relieved by proper diet. In pellagra we frequently find the nervous symptoms progress in spite of treatment, and this fact suggests that some organ in close physiological relationship to the nerves has been permanently damaged. Dysfunction of the endocrinal glands, the adrenal among them, is probably the cause of pellagra. Of the pituitary gland only the anterior portion is developed from the ectodermal layer. This portion of the gland influences the growth of the skin and skeletal structures. Its secretion stimulates the nerves in a manner similar to that of the adrenals on the sympathetic, though the process of action is not so apparent. Hyperplasia, or tumor growth, leads to acromegaly in the adult and a form of giantism in the adolescent that is familiar to you all. Hypopituitarism, on the other hand, is less objective and is frequently overlooked, though when fully developed it is very obvious. Its prominent symptoms are the opposite of giantism. The body assumes the feminine form with small bones and soft, smooth skin devoid or nearly so of hair on the face or in the axillæ. The distribution of the hair on the pubis conforms to the female type. These patients are all fat, some excessively so, but the fat is not uniformly distributed. It chiefly accumulates in the supra clavicular fossæ, the front and sides of the abdomen, and over the hips and upper part of the thighs. The sexual powers are diminished and in extreme cases lost through imperfect development of the sex organs.

Of the other glands the cortex of the adrenals veloped from the Wollfian bodies and have a special influence on sexual life. Disease of the cortex produces precocious sexual development with somnolence and other nervous symptoms.

The sex glands have, through their internal and the interstitial cells of the gonads are desecretion, the most profound influence on the individual growth and mentality. Puberty marks the beginning of their activity in which the skin shares. When this is excessive and the basic conditions are favorable, acne is the result. With the climateric the functions acquired at puberty are gradually lost and the whole of the bodily structures begin to decay. With the advent of the climateric there comes a loss of virility. Man returns again to the asexual condition of childhood and effeminacy that denotes his evolutionary origin. The male is only a recent evolution, a secondary, and in the lower organisms an unnecessary factor. The Bible story of the creation is not physiologically correct, the woman must have supplied the rib. The climateric in woman comes about the age of forty-five, and with man about sixty-two. The retiring age for employes in the civil service is sixty-five, a good physiological choice with man, but it, on natural grounds, ought to be forty-eight or fifty for women, for after the climateric most individuals simply vegetate, the mentality slowly weakens, it is the golden age of Eddyism. With some senility is long deferred, and the individual who retains his virility retains his mentality. You cannot have failed to observe that the men famous in history were not always renowned for their chastity, while almost the only famous women have been the infamous. The phallic worship of the ancients was but a tribute to glandular efficiency. That they worshiped the phallus as an emblem of the mysterious source of life was probably a secondary thought. The primal instinct, when man survived by physical prowess, was the worship of efficiency, and this he knew rose and fell with the functional activity of the sex glands. Lydston, by his operation of gland implantation, has proved the truth of this,

but his method for rejuvenation is likely to be superseded by that of Steinach.

While the endocrine glands all seem to support each other in the regulation of the vital forces, there are some such as the ovaries and the thyroid that mutually inhibit each other. This is the more probable in view of the fact that all life processes are regulated by stimulation and inhibition, for without these counteracting forces life would not appear possible. I think that it is necessary to remind you that life, even long life, is possible without the possession of the sex glands, and that this system must be considered as an accessory engine in the train of life, and as such, it must contain in its endocrine functions both stimulating and inhibitory hormones. On this account it will be found that the ovary and graafian vesicles are inhibitory one to the other, and this action regulates the menstrual functions and prevents the irregular and promiscuous discharge of ovæ.

Influential as these glands individually are, all are overshadowed by the thyroid. The secretion of the thyroid is greater than that of any other gland, and its function is "the governing and upbuilding of the cell and regulating the destruction of the protein molecule." With the results of hypersecretion, as seen in hyperthyroidism and Graves' disease, you are all quite familiar. Hypothyroidism in youth arrests development, and when extreme, cretinism results. Deficiency of secretion in the adult leads to dryness of the skin, thinning of the hair, and edema of the subcutaneous tissues known as myxedema. This condition is rapidly remedied by the administration of thyroid substance. In appropriate doses thyroid may be administered for long periods. It is interesting to note that the first patient with myxedema, to which Dr. Murray experimentally prescribed thyroid extract, has recently died at the age of seventy-four, having used thyroid extract more or less continuously for twenty-seven years. The thyroid is developed from the mesoderm, and has only an indirect influence on the skin in the general upbuilding of the body. It is important in this connection to recall that in the process of evolution the thyroid secretion originally passed into the digestive tract by the thyroglossal duct, and it exercised its function by absorption from the intestine like any other food product. Though the thyroid no longer discharges its secretion in this manner, it still retains its activity in the presence of the digestive juices, and thus it is that thyroid extract may be administered by the mouth without any loss in efficiency. The secretion of the anterior pituitary originally discharged into the buccal cavity so it, too, can be successfully used by the mouth. All the other endocrinal glands, or glands with internal secretion, have in the whole course of their development discharged their hormones directly into the blood stream, so I doubt if any of them are effective if given in any other way than by the hypodermic route. Adrenal secretion when given by the mouth is partially absorbed by the mucous membranes in its passage, and can be effectively administered by trickling into the nasal passages, but it is destroyed by the digestive secretions.

It must also be borne in mind that in administering the powdered gland but an infinitesimal part of the secretion is contained therein, the gland is not its secretion. Against this argument it may be truly said that the hormones are infinitesimal in quanity and that they act rather as catalytic agents, and are in consequence not to be considered from the quantitive side. It may be that those hormones are to man what chlorophyll is to the vegetables. Chlorophyll, vitamines and glandular secretion are all closely linked. This is shown by the increased production of the active principle found in the glands of animals killed in the summer season when green food is available.

On account of the intimate relations of the glands pluriglandular therapy is much affected by some, but I suspect from the manner in which it is prescribed that most of its value lies in the thyroid extract, but of course practical experience may ultimately prove that this assumption is wrong. All these glandular secretions are and must be originally derived from the mineral world. Thyroid deficiency is presumed to be the result of the lack of iodine in the dietary, and thyroid enlargement, which is probably purely compensatory, is a common affliction among the inhabitants of some districts in our own country. The states of Washington and Ohio seem to show a relatively much greater proportion of enlarged thyroids than any others in the union, and some of the social conditions are undoubtedly influenced thereby.

The fate of the individual and the nation hangs on the infinitesimal. The grandeur of ancient Rome succumbed to the inroads of the malarial parasite of the Pontine marshes. The initial success of the Confederacy in the Civil War was inhibited by the hookworm. Who knows but the fate of our country under the present administration may hang on the iodides.

The retention by the thyroid secretion of those qualities it possessed when it originally discharged itself into the digestive tract lends support to McCarrison's suggestion, that thyroid enlargement is due to intestinal toxemia, and is but an exaggeration of the normal physiological process. There is a point of view presented by W. Langdon Brown that would seem to support that theory. He remarks that "the active secretion of the thyroid is an iodine compound of indol. Indol is a decomposition product of tryptophan, a constituent of the protein molecule. Indol is ordinarily split off by the action of the intestinal bacteria, notably the bacillus coli." It would thus seem that the primal elements entering into the formation of the thyroid secretion are originally derived from the intestinal tract, and the process of evolution would lend support to this view. With the anterior pituitary secretion probably the same holds good, but all the secretions of the other glands are primarily elaborated in the blood.

SUMMARY

A perfect endocrine system is necessary for normal mentality.

Only those glands that are developed from the same somatic layer as the skin directly affect it.

Only those glands that originally discharged their secretion into the digestive tract are effective when administered by the mouth.

CLINICAL USEFULNESS OF ORTHO-CARDIOGRAM AND CARDIAC PATTERN *

By HARRY SPIRO, Ph. G., M. D., San Francisco.

Size and shape are important factors in diagnosing functional from organic disorders of the heart. All text-books of medicine agree that you should be extremely cautious in saying a heart is diseased unless you can prove that it is enlarged; and they also agree that when you percuss the outlines of the heart, your results are very unreliable. For this reason we were in need of a reliable method of determining the size and shape of a heart, and so we have come to depend more and more upon the Roentgenologist, but even though radiograms or X-ray pictures are indispensable aids in studying diseases of the heart, they do not aid us sufficiently in following up a case. We need more of the valuable information which the Roentgenologist can and will furnish if the demand is created. The Roentgenologist can furnish us with a method which will visualize the heart, not on an X-ray plate or radiogram, but on the chest of our patient, a method which can be used in comparison with our percussion outline, and correct them if need be.

It is so easy for the physician to send his patient to have a radiogram taken of his chest. This radiogram is inspected, but as a rule remains in the Roentgenologist's office, and a written report satisfies the doctor. Frequently, this report tells you that the heart, which you thought enlarged, is to the Roentgenologist normal in size, but does that opinion sufficiently assist you in the future examination of your patient? A radiogram does not picture the patient's heart on his chest in a way that you could study the changes which might take place daily, or weekly, and it is not practical to take a picture each week. Can you correct your percussion outlines by remembering how the heart looked on the radiogram? Can the radiogram assist you in determining the position of the apex of the heart which you cannot feel? You see then how difficult it is to have your patient fit the picture seen on a radiogram; how difficult it is to make your percussion outlines and X-ray findings dovetail.

We cannot criticize the Roentgenologist for so seldom furnishing us a report of the actual measurements of the heart in comparison to other measurements taken of persons of similar weight, because the standards of the size of the heart in respect to weight should be still further standardized; besides, the different standards or tables cannot be memorized; they must be kept in view. Yet, some valuable information can be obtained by comparing your measurements with such standards as we now have. Frequently, a heart which appears normal to the Roentgenologist may be enlarged when compared to weight, height, etc., of your patient.

Then, there is not sufficient standardization of the technic among the Roentgenologists, as some take their pictures by placing the patient two feet from the X-ray tube, others three feet, and some carefully centering the tube with the patient, etc. Frequently, reports from different X-ray laboratories differ materially. For purposes of study and comparison a uniform method should be adopted by all X-ray laboratories. Most Roentgenologists snap their pictures of the patient's heart while he is holding his breath at the end of a deep inspiration, because by this method the Roentgenologist gets the clearest pictures, but

* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

RADIOGRAMS OF THE B. FAMILY

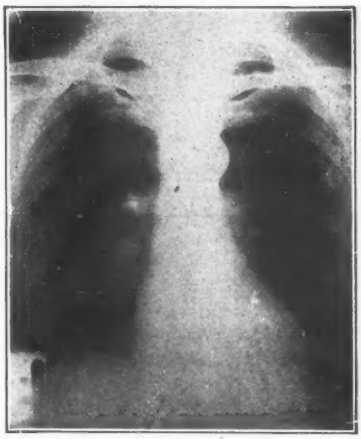
Mr. Porter B. Sr. (IV), has a pathological heart, but by the study of the three radiograms you could hardly tell which of the three hearts was diseased; there is no apparent enlargement shown by the radiogram.

The physical examination showed his heart to be apparently enlarged to the left. He has a loud systolic murmur at the apex, but feels fine.

Upon looking at the orthocardiogram you would not hesitate to pick out the heart of Mr. P. B. Sr., No. VII, as probably being pathological because, first, his cardiac silhouette is so distinctly out of line to that of his two sons, who resemble the father greatly in appearance, weight and height; besides, the two sons have comparatively small hearts for their weight. We would, therefore, say that the B. family type has small hearts, and that Mr. B. Sr. has a heart larger than what is apparent to our system of measurement.

By Von Zwaluwenberg's method,[1] the auricle showed a ratio of 1 when compared to the ventricle; the normal ratio is about .55.

[1] American Journal of Roentgenology, January, 1920.



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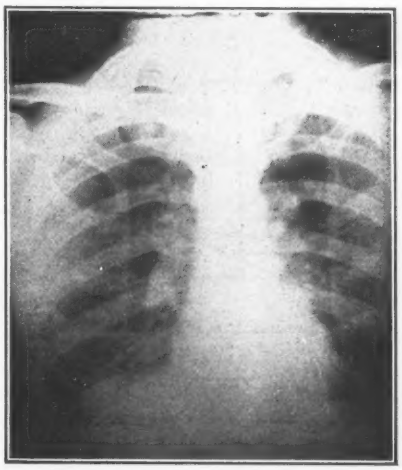
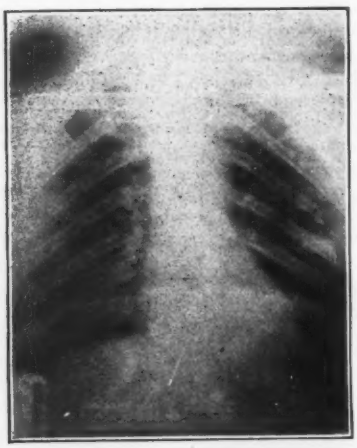
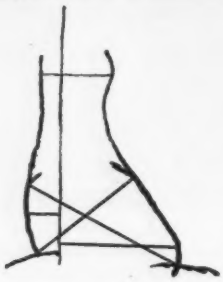
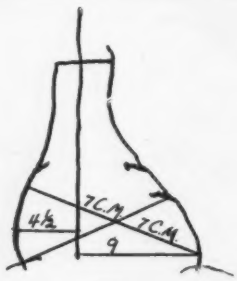


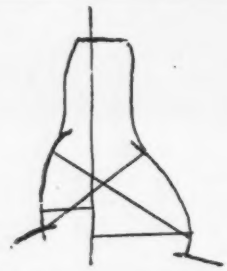
when the internist examines his patient he pays no attention to the respiratory phase, but examines during both phases of respiration. Now, you can-







VII



not make a picture of the heart, taken when the diaphragm is depressed at the end of a deep inspiration, agree with your physical examination made without reference to respiration. The above are only a few of the difficulties one meets when trying to make your laboratory X-ray findings agree with your physical findings.

There are two methods in favor for making X-ray examinations of the heart more accurate. In both methods the technic of all laboratories agree. The first is the teleradiographic method: This, as you probably know, is done by placing your patient and film from six to nine feet away from the target of the X-ray tube. At this distance most of the rays which strike the heart are parallel rays, and so there is not the exaggeration of outline as is seen in an ordinary distance X-ray plate. Measurement of the heart by the above-described teleradiographic method is accurate enough, but the system is very hard on X-ray equipment. There are also the same objections as that offered against all radiograms, namely: You cannot use them to correct your physical examinations. You cannot tell if the heart you are examining deviates from the previously taken teleradiogram until you have taken another one for comparison.

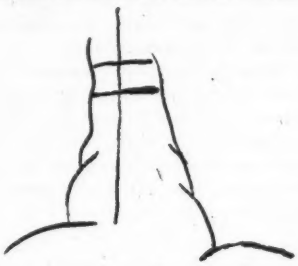
It is with pleasure that I quote from Von Zwaluwenberg, of Ann Arbor, Michigan, who, I believe, is leading the way in the United States in advancing the use of the fluroscope in the study of cardiac conditions. He has demonstrated the importance of measuring and comparing certain diameters of the heart, not only to prove that the heart is enlarged, but to prove that a heart apparently normal in size to our methods of measurement may have the auricles out of proportion in size to that of the ventricles, as his method depends upon the observation of that point where the auricular action ends and the ventricular action begins. It can only be done by observation with the fluroscope; no X-ray plate can show it. So then the orthodiagraphic method is the method of choice. In this method only the parallel rays from the X-ray tube are used. By centering your tube and then using the smallest opening in your lead diaphragm you eliminate the divergent rays, and utilize only the parallel rays. A permanent record is made by marking on paper the exact outline of the heart as is shown by these parallel rays. In this way the size of the heart can be accurately measured, and as Von Zwaluwenberg says, "The peculiar characteristics of the shape or contour of the heart are recorded in a way impossible of production by any X-ray film." Therefore, in the study of the contour of the heart a wide field for study is open.

Now, by simply cutting out the above outline of the heart you have made your cardiac pattern. This pattern can be used in checking up your physical findings. For this purpose you must place your orthodiagram, or your heart pattern, on your patient's chest in exactly the same position in which it was originally taken. This is difficult if the patient has large mammary glands or some deformity of the chest. In 1908 Alba Schoenberg, of Germany, marked the orthocardiogram directly on the skin, transferring it to glass and then to paper. Instead of glass we now use parchmin paper (not parchment), but a transparent parraffine-like parchment paper.

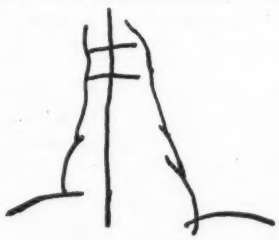
RADIOGRAMS OF MISSES HELEN AND THERESA S.

Miss Helen S., No. IX, is a patient of Dr. W. E. Smith, of San Francisco. She has a systolic murmur in pulmonic area. Physical examination showed heart large for her size; she weighs one hundred pounds. The radiogram showed obliteration of the pulmonic arch—a normal and frequently abnormal sign.

Radiogram taken of her sister, Miss Theresa S., XXI, whom she resembles greatly, showed marked similarity to the cardiac shadow. It is exceptional to have radiograms of different members of one family show such marked similarity, because there are so many "phases" that enter into the taking of radiograms, as you cannot take a radiogram of two different subjects at the same "phase" of the respiratory effort; therefore, you are liable to get different shadows on the radiograms.



X

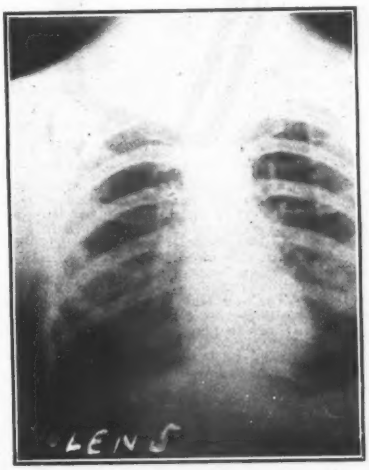


XI

The orthocardiograms, X and XI, show even greater similarity. You can hardly distinguish one from the other. Therefore, it was considered that the obliteration of Pulmonic Arch was a family type and no pathology present.

XII

So then by directly marking the orthocardiogram on your patient, then transferring it directly to the parchmin paper, and by cutting out the outline of the heart you have your cardiac pattern. As this pattern is taken directly from the patient's chest it can by the use of certain land marks be replaced at any time you wish, and in the same position as when originally taken. This cardiac pattern can be enclosed with your history sheets so that at any future examination you can reproduce your exact X-ray findings as regards the size, shape and position of the heart on your patient's chest. You can judge the heart by any of the standards of weight and height, and by the standard of the patient in front of you. You can, at any future examination, determine if the heart deviates from the record in front of you,



The orthocardiogram, or cardiac pattern, marked on the above patient's chest.

Upon physical examination the apex of his heart was thought to be over 1½ inches below where it was found to be by the cardiac pattern.

Once having his cardiac pattern outlined on his chest you could not examine him wrong, because you would not look for the apex of his heart in his abdomen.

This instrument reaches around and under the fluoroscopic screen; the point marked "B" is allowed to rest on the skin opposite the spot you wish to mark; pressure of your thumb at "A" presses forward the ink container at "C," thus marking a dot on the skin. Each time the "Focal" spot on your screen comes in line with the edge of the Heart you place a dot on the skin; then the dots are later united to make the outline of your orthocardiogram.

The focal spot on the screen is made by first centering the X-ray tube; then the lead diaphragm in front of the tube is closed as small as possible, and that spot on the screen which is illuminated when the current is turned on is your "Focal Spot." This focal spot can be marked with tinfoil for permanent use.

CARDIAC PATTERN

Here is a radiogram of a patient with a "barrel-shaped" chest. For that reason there is considerable exaggeration of the cardiac shadow.

The question is—Would the study of this radiogram sufficiently assist you in the future examination of the patient? Could you correct your physical examination after examining the radiogram?

and you, who are responsible, do not need to depend entirely upon the Roentgenologist for an opinion. You can put some of your own individuality into the opinion you render.

CONCLUSIONS

Radiograms are indispensable aids in the study of cardiac diseases; orthocardiograms or cardiosilhouettes are indispensable in studying the contour and determining the relative size of the different chambers; the teleradiograms for determining the exact size of the hearts of a large number of patients in rapid succession, and for co-ordinating the technic of all laboratories; the cardiac pattern is recommended as an aid or guide in our physical examination and for bringing our laboratory X-ray findings in synchronisms with our physical findings.

A brief description of the so-called family type of heart is combined with a description of the pictures.

FAMILY TYPE OF HEART

It may seem unnecessary to suggest the study of a family type of heart, in addition to our other standards of measurements.

But, as there is no good reason why our internal organs should not have the same comparative resemblance to those of our immediate family, whom we resemble outwardly, we may study those hearts which are apparently normal in size though diseased by looking for a "family type."

212 Stockton Street, San Francisco, Cal.

Book Reviews

Handbook of Diseases of the Rectum. By Louis J. Hirschman. 3rd ed. 378 pp. Illustrated. St. Louis: C. V. Mosby Company. 1920. Price, $5.

This work deals with those conditions of the rectum and anus which can be treated by the general practitioner in his office. The larger portion of the volume is devoted to treatment, but cursory attention being given to a consideration of the pathogenesis and pathology. None of the diseases requiring major surgical intervention are included, as the author frankly states that his book deals with those procedures only which may be carried out under local anesthesia. While this feature may be in some ways useful or convenient, it requires the possession of some other work dealing more comprehensively with the subject. It is a question in the mind of the reviewer whether a separate book is necessary or even desirable which merely puts together those procedures possible to be carried out in ambulatory practice.

In the chapter on hemorrhoids, the author says that the clamp and cautery operation is "not, of course, applicable under local anesthesia, and I mention it merely to condemn it." Issue is taken with this statement first, because the operation is definitely applicable under local anesthesia, the reviewer performing it quite frequently, and with the greatest ease; and secondly, because the reviewer is not yet quite certain that the old clamp and cautery is not the procedure of choice in most cases because of its simplicity and relative freedom from uncomfortable sequelae, particularly the formation of external tags. The author does not believe that a red-hot iron in a cavity lined with mucous membrane is rational. The argument is untenable. What does he think of a red-hot iron in the peritoneal cavity? Does he likewise condemn the modern technic of intestinal resection?

The book entirely ignores mention of the many unsatisfactory results following removal of piles and the surgical treatment of fistula. This we look upon as a great weakness. Here the general practitioner needs help—as does, for that matter, the experienced surgeon.

On page 34, "rectal adenoids" is mentioned—doubtless adenoma is meant. "An examination of the rectum will often disclose the presence of pinworms (p. 39) in restless children." Why not mention the stools? The embryology of vaginal anus is a little weak.

The article on hypertrophied anal papillae is good. The part that this condition plays toward

the production of human discomfort should be better known by practitioners.

is excellent. S. H.

The chapter by Jelks of Memphis, on dysentery

Common Diseases of the Skin. By G. Gordon Campbell. 229 pp. Illustrated. New York: Macmillan Company. 1920.

A careful inspection of the book failed to convince the reviewer that it met the demands of the student of today. The illustrations are quite good and ought to be very instructive. Perhaps this feature will commend the book to some who do not require much reading on the part of their students.

H. E. A.

Regional Anesthesia. By B. Sherwood-Dunn. 294 pp. Illustrated. Philadelphia: F. A. Davis Company. 1920. Price, $3.50.

This book contains many of the methods originally described by Braun. It adds descriptions of Kappis' paravertebral injections for various laparotomies, nephrectomy and other operations on the chest and trunk. It puts an unfair slight on Braun and his pupils in not giving them the least credit for their brilliant discoveries. Many of the figures and diagrams attributed to others are lifted bodily from Braun's work.

It is more compendious than Braun's classical monograph, but it is not nearly as complete, nor as well balanced. It does not recognize sufficiently the limitations of regional anesthesia.

It is illustrated by many dramatic photographs of patients smiling under local anesthesia. The anatomical figures and diagrams, which might be more useful than patients' and surgeons' pictures, are crude.

The surgeon who wants a complete monograph on local anesthesia will find Braun in Percy Shields' translation or Allen's book more useful. This manual, however, will prove handy for quick reference. L. E.

Text-book of Dermatology. By J. Darier. Edited in English with notes by S. Pollitzer. 769 pp. Illustrated. Philadelphia and New York: Lea & Febiger. 1920.

This text-book by Darier has been most excellently translated by S. Pollitzer, who has added many personal notes of value. The book is divided into two sections—one on Morphology of the Dermatoses, and the other on Nosology of the Dermatoses. It has an excellent appendix, which is full of good ideas upon the therapeutics of dermatology.

In a text-book one always looks for the manner of treating the subject of eczema, which gives a good idea of the value of the book. The subject which, in times past, was considered a distinct disease entity is here looked upon, as in most of the later writings, as less distinctive generally and more as a skin reaction toward a series of things, either internal or external in origin. One can get a clear conception of the varied elemental causes as Darier understands them, which are back of the puzzling question of the dermatoses, eczematoses and eczematides. Though many of the subjects, such as leprosy for instance, are treated with but short accounts, the clearness and conciseness of the articles leave little to be desired.

The editor makes up for the lack of consideration of arsphenamine, arsenic therapy and chemotherapy by adding his own clear views on the intensive treatment of syphilis. It would seem that too little space is devoted to those important, varied conditions which are due to streptococcic infections and may well be termed streptodermias.

The reviewer considers this one of the best publications of its kind, an excellent book for the physician, surgeon or specialist in any line of medicine. Its size is greatly in its favor, making it convenient to handle. G. D. C.

1919 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 1331 pages, 490 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth. $12 net.

The wealth of publications contained in this volume is such that all I can do here is to point out the most salient contributions and to recommend to all the reading of the original articles.

Most prominent in the first section (Alimentary Canal) is the paper by C. H. Mayo on "Cancer of the Stomach." He does an anterior Polya operation that is an antecolic gastro jejunostomy closing one-half of the stomach opening and using the other half for the anastomosis with the jejunum which is turned to the right (iso-peristaltic); the point of attachment of the jejunum being fourteen inches below its origin. He uses continuous chromic and silk sutures and claims cures in twenty-five per cent. of five-year cases.

I also note two other important papers; one by Eusterman, on the Treatment of Gastro-jejunal Ulcers and the other by Balfour, on the Destruction of Bleeding Gastric and Duodenal Ulcers by the cautery.

In the second section (Uro-genital Organs) Bradsch and Carman and C. H. Mayo describe renal fluoroscopy done at the operating table with a portable X-ray apparatus for the detection of kidney stones when they are hard to locate.

There are several excellent contributions from the pen of E. S. Judd. In nephrectomy (for tuberculosis of the kidney) he no longer sterilizes the ureter with carbolic, and isolates it by pulling it through a rubber drain to avoid soiling the field of operation. I also remark that transperitoneal operations on the urinary bladder do not occupy such a prominent place as before. In prostatectomy the Mayos insist on an open operation done with retractors under the guidance of the eye.

Then follows the chapter on ductless glands with several interesting articles on the physiological chemistry of the thyroid, basal metabolism, et cetera. Sistrunk insists that caution is imperative when the metabolic rate is above plus 40, and no thyroidectomy is permissible if it is 60 or 70.

Ashby gives a most original account of the length of life of transfused blood corpuscles in man estimated by agglutination.

In the last section I note the favorable report of Meyerding on the Hibbs and Albee operations for treatment of tuberculosis of the spine and several papers by Rosenow on system infections, influenza, etc.

It will be a consolation for most of us to see the mixed results obtained by Henderson in his operations for un-united fractures of the neck of the femur.

The book closes with many papers on public health, social service, medical education, etc. (several of them written by W. J. or C. H. Mayo in person) which testify to the broad vision and interest of the authors in all fields of medical science.

The book is worthy of its predecessors and is a monument to the labors and achievements of that magnificent institution, the Mayo Clinic.

P. S. C.

The Endocrines. By Samuel Wyllis Bandler, M. D., F. A. C. S., Professor of Gynecology in the New York Post-Graduate School and Hospital. Octavo of 486 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $7 net.

This book embodies the author's own ideas on the subject of the endocrine glands and their interrelations, which ideas are gathered chiefly from clinical observation and elaborated into theories which are little supported by experimental evidence. In his enthusiasm, he sees the endocrine glands as the controlling agents in heredity as

well as in many physical and mental states which are not ordinarily considered as dependent upon endocrine function. He believes, for example, that "dementia praecox is a serious and extreme type of endocrine aberration or abnormality evidencing its presence by psychic rather than somatic alterations." He attributes fibroids to overactivity of the posterior lobe of the pituitary. His enthusiasm reaches its height in the following expression: "Medicine is concerned with bacteria on the one hand and the ductless glands on the other, and it is the ductless glands which aid the living body in the perpetual contest with bacteria and bacterial infections." Ten pages are devoted to the author's conception of criminality and presentation of his argument that it has an endocrine etiology.

There is much irrelevant material (Chapter XIII does not mention the endocrine glands at all) as well as extensive quotations from novels and scientific works. There is no bibliography. The five chapters on gynecologic subjects and eighty pages of case histories are, perhaps, the most valuable portions of the book.

The author, throughout, attributes too many functions to the various glands upon purely theoretical grounds, which tendency leads to some startling statements. For example, "When a patient after several hours of sleep awakes and cannot fall asleep again, some endocrine is responsible for the rousing of the upper consciousness, and if we found by questioning the nature of the dream which aroused the patient or the thought or emotion which is now present during his waking state, we can readily discover which of the endocrines are hyperactive at this time."

The book contains many statements similar to the above, and for this reason one is inclined to regard it as a work on "speculative" or "philosophical" endocrinology. It contributes no new, definitely proven facts concerning the endocrine glands. J. M. R.

Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Professor of Pathology in the University of Chicago, and in the Rush Medical College, Chicago. Fourth Edition, Revised and Reset. Octavo of 695 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $7 net.

Texts on the exact sciences are uninteresting reading, which fact dissipates concentration. Concentration is absolutely essential to mental assimilation. Unless the subject matter can be properly assimilated, it cannot be properly applied. If you cannot apply what you read, there is no use reading it. Unless the object is entertainment, the value of reading is measured by its usefulness. Perhaps this is the reason why text-books on the allied sciences, such as chemistry, bacteriology, physiology and pathology are in such excellent state of preservation on the shelves of the practicing physicians and surgeons. In this work, however, the author presents the subject in an interesting, as well as logical, manner. Although strictly scientific, it is readable and one might almost say, that it invites concentration. In this era of analysis where nothing but fundamentals satisfy the omnivorous investigators, where the body has assumed the nature of a physical and chemical laboratory and where pathological changes have also definite chemical explanations, this book ought to be found within reach of the interested practitioner.

It is impossible to point out all of its features, there are so many, but it gives the student a new viewpoint in the study of tissue changes. It broadens and emphasizes the simplicity of many reactions which have been thought to be complicated. After reading this book, inflammation assumes a role that has been only vaguely associated with it. With a rapidly growing importance of the laboratory as a diagnostic and therapeutic aid, this book is one which the general practitioner, specialist and student, no matter what his chosen work may be in medicine or surgery, would do well to familiarize themselves.

J. A. P.

Text-book of Biology. By William M. Smallwood. 4th edition. 308 pp. Illustrated. Philadelphia and New York. Lea and Febiger. 1920. Price, $3.50.

This book is an interesting résume of some of the features of biology. It presupposes considerable knowledge of both animals and plants and deals with principles rather than with details. For this reason it strikes one that it would be more useful to a student wishing to review the subject rather than to one just beginning. The various subjects are well proportioned and the style shows two cardinal virtues that the late Dr. Osler stated should characterize all scientific writing, brevity and lucidity. A. D. E.

County Societies

ALAMEDA COUNTY

The regular meeting of the Alameda County Medical Society was held April 18. Dr. Samuel Hurwitz, of San Franciso, read a paper on "The Value of Vaccines in Bacteria Asthma," and Dr. Albert H. Rowe presented a paper on "Advice in Diagnosis and Treatment of Hay Fever and Asthma."

On April 12 the Alameda County Medical Society held a luncheon at the Hotel Oakland in honor of Professor John M. T. Finney, of John Hopkins University.

At the April meeting of the staff of Merritt Hospital on April 4, Professor Thomas Addis, of Stanford Medical School, spoke on diabetes. Professor Harold Brun, of the University of California, discussed intestinal obstruction.

Dr. Paul J. Anderson's death was reported from Honolulu, T. H.

FRESNO COUNTY

The regular meeting of the Fresno County Medical Society was held May 3, 1921.

The President appointed Drs. Cowan, Hayden and Cross to act as a committee to restore as far as possible the records of the society which were destroyed in the recent fire at the Forsyth Building.

Dr. J. T. Gardner and Dr. C. M. Vanderburgh were elected to membership in the County Society.

Dr. Harry Spiro, of San Francisco, read a paper on the subject of cardiac dyspnoea.

KERN COUNTY

Regular monthly meeting of the Kern County Medical Society was held Friday evening, April 15, 1921.

Dr. Henry Dietrich, of Los Angeles, discussed the subject of "breast feeding," and read a paper on "Nephritis in Children." His remarks were followed by a general discussion.

Miss D. E. Bradley, County Bacteriologist, spoke in regard to her duties as milk inspector. Her remarks were further added to by Mr. Penfield, dairy inspector for the county.

The following members of the society were present: Drs. Fogg, S. F. Smith, Joe Smith, McNamara, McKee, Buchner, Gundry, Kellogg, Compton and Guinan.

After the meeting the society enjoyed an informal supper at the St. Francis cafe.

SAN DIEGO COUNTY

The last meeting of the Society in April took the form of a dinner at the Hotel San Diego, at which upwards of a hundred members of the local medical and dental societies were present. Dr. Julio Endleman, of Los Angeles, gave a half-hour talk upon focal infection occurring in mouth and throat. The subject was discussed by Drs. G. M. Hallenbeck, Robert Preble, Leland D. Jones, James L. Ross, H. P. Emeis, Harvey M. Jackson, James F. Churchill, W. S. Kyes.

In May the monthly meeting of the medical staff of St. Joseph's Hospital will be combined with the second regular meeting of the medical society for the month.

St. Joseph's Hospital is making steady progress in hospital betterment.

The new Naval Hospital being erected in Balboa Park gives promise of a substantial and imposing structure.

All persons interested in better medicine and better public health commend Judge Edgar Luce for his firm stand in dealing with violators of the Medical Practice Act.

San Diego again appreciates the honor of entertaining the State Society, and has done strenuous preparatory work to break the records of attendance and hospitality.

SAN JOAQUIN COUNTY

The regular meeting of the San Joaquin County Medical Society was held at the Chamber of Commerce quarters, Friday evening, April 8, President L. R. Johnson presiding. Those present were: Drs. L. R. Johnson, F. S. Marnell, A. H. McLeish, H. S. Chapman, C. F. English, B. J. Powell, H. C. Price, B. F. Walker, Minerva Goodman, N. P. Barbour, G. J. Vischi, J. F. Blinn, J. D. Dameron, C. D. Holliger, L. Dozier, E. A. Arthur, D. R. Powell and Dr. Frank Kelly and Dr. Wilfred Kellogg, of the State Board of Health, as speakers of the evening.

Dr. Wilfred Kellogg read a paper upon "The Physician and Public Health." Dr. Frank Kelly spoke upon the "Control of Communicable Diseases." Both doctors emphasized the importance of the physician co-operating with the local health officer, and of the value of quick and accurate diagnosis and careful isolation. The importance of a full-time health officer for a community the size of Stockton was mentioned. Dr. L. Dozier, city health officer, reiterated his often expressed opinion as to the advisability of a full-time health officer for Stockton.

Correspondence

A NEW THEORY OF THE CIRCULATION

April 14, 1921.

To the Editor:

As far as I know or have been able to find out, the theory herein expounded is an entirely new one and I believe susceptible of scientific proof.

The question as to why the blood flows in the veins has never been satisfactorily answered. The cause of the blood flow in the arteries is apparent, but the work done by the heart and the elastic recoil of the arteries is all used up in the passage of the blood through the capillaries and the capillary bed.

In other words, there is little or no pressure in the capillary bed, the vistergo—is exhausted. Yet the blood does flow steadily in the veins, and physiologists have sophisticated for years as to the cause of this flow. All text-books give the following causes, and all admit that other undiscovered causes are concerned.

1. Negative pressure in the thorax.
2. Negative pressure in the right heart.
3. Muscular action compressing the veins (passive).
4. The fact that the veins have valves preventing centrifugal flow in them.
5. I believe the other factor to be as follows: The CO_2 content of venous blood is as much as 45 cc. of CO_2 in 100 cc. of venous blood. Perhaps as much as 85 per cent is in solution in the plasma or combined with protein (probably globulin).

Certainly, a very small quantity has combined chemically with the hemiglobin and carried by the erythrocyte. In the tissue, where combustion occurs, the CO_2 pressure is considerable, and the venules are subjected to this pressure, the heavier as the capillary bed becomes distant, and the same condition obtains as in a seltzer bottle, which contains CO_2 dissolved in water, and which will discharge its contents because of the CO_2 pressure. In other words the CO_2 pressure forces the venous blood forward toward the area of negative pressure (thorax) just as the water in a siphon bottle is forced up against gravity. Individually, the venule or venous capillary has but little pressure, but there are billions of them, and the sum total will equal the venous pressure at any given point.

Fraternally,

A. H. WHITE.

1005 Market Street, San Francisco.

(Comment,—Dr. White believes that the pressure of carbon dioxide in the venous blood forces this blood toward the thorax just as water in a siphon bottle is forced out of the spout. It is probable, however, that this factor plays no part in the movement of blood in the veins. Siphon water is supersaturated with CO2, which is forced in under pressure. If this pressure is relieved the CO2 escapes in bubbles. Blood is not supersaturated with CO2, and there is no bubbling when it is exposed to the air. In the case of the siphon bottle, the CO2 escapes into the upper part of the bottle as the water level descends. There is no such escape of free CO2 into the veins and capillaries.

The last statement in Dr. White's letter to the effect that pressure within the capillaries should be added in order to get the sum total of pressure is not correct, for in a movement of fluid it is the pressure per square unit of surface, and not the total pressure that determines the motion. This is the principle of the hydraulic ram.)

THE GRACELESS CHIRO

To the Editor:

The following letter was received by a member of my family from a San Francisco chiropractor. Could anything better illustrate the graceless commercialism of this ilk?

Very truly yours,

A. F.

San Francisco.

Dear Madam:

It is only when ill that you require a physician's services and doubtless you are accustomed to consult a medical doctor on such occasions,—probably the family doctor.

It is natural that you should feel reluctant about departing from this custom, yet if you could, by experience, learn of a quick and efficient method for relief from bodily ills, especially nervous troubles, you would be eager to adopt it as soon as its reliable restorative virtues were demonstrated to you. I have taken the liberty of sending you two letters suggesting that you call and let me tell you of the extraordinary results that are daily being achieved by chiropractic treatment.

I do not know that you are in need of my services—indeed, I hope your health is excellent—but in case you are ailing or are "doctoring" for any trouble, why not come and see me? It will only occupy a little of your time, you will not be urged to take treatment, and there will be no obligation whatever for consultation.

Please bear in mind that I am licensed to practice as a chiropractic, by the State Medical Board, the same board that gives every physician in this state a license to practice. If I were not skillful and proficient I could not have secured nor could I retain this license.

Again I invite you to call. You will be accorded all courtesy and consideration, will find the environment of my offices restful and inviting, and most important of all you will learn how chiropractic treatment will quickly correct the major portion of physical ills, just because it is Nature's way of curing.

Sincerely yours,

DR. _____.

NOTICE

POTTER METABOLIC CLINIC

At a recent meeting of the Board of Directors it was voted to change the name of this clinic from that of Memorial Laboratory and Clinic to the Potter Metabolic Clinic, in honor of its founder, the late Nathaniel Bowditch Potter. The clinic is housed in a special wing of the Santa Barbara Cottage Hospital. Dr. W. D. Sansum is its present director.

Clinical Department

"NEUROTIC" ASTHMA

By

F. F. GUNDRUM, M. D., Sacramento.

For many centuries the "nervous" origin of asthma was considered indisputable. In later years, with the better understanding of chemical (anaphylaxis) and reflex exciting causes, the nervous mechanism has been allowed somewhat to recede into the background.

My attention was recalled to this phase of the disease by the following case, decidedly unusual as far as my experience goes.

Case History—

H. J., single, age 56. No serious diseases; heavy smoker, five cigars a day for thirty years; heavy drinker; claims to have drunk a quart of whisky every day for twenty years. His brother says he thinks this figure a little high, but considers his daily average to have been well over one pint. Present illness began seven months ago with severe cough and cold. Did not clear up completely. Four months ago began to have severe attacks of asthma, lasting two to five days, only partially relieved by vigorous drug therapy.

Two months ago during a severe asthmatic attack, an active alcoholic psychosis appeared. For the first two or three days the delirium alternated with rational intervals of from one to three hours. During the periods of mental clearness this patient wheezed violently. His chest showed the usual expiratory prolongation with sonorous rales. When the mental condition became clouded and the patient actively delirious, the bronchial spasm disappeared, leaving the chest with only the medium and large rales of a chronic bronchitis.

This alternation of clear mind with asthma, and delirium without asthma, occurred some half dozen times during three or four days. He then became continuously hallucinated. The asthma has not yet returned.

Capital National Bank Building.

CASE HISTORIES FROM THE CHILDREN'S DEPARTMENT, UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL AND HOSPITALS

1921 Series. Case No. 6. 1914. Female, American, age eight years. No. 8007. L. C.

Family History: Father and mother living and well. Father had been subject to attacks of indigestion and had just recovered from a case of "grippe." There was a strong family history of tuberculosis. L. C. was one of seven children.

Past History: She was a full term, normal delivery child. She had always been a well baby with the exception of having had measles and a few intestinal upsets, but none of any severity.

Present Illness: Four months before entering the hospital child had had a daily temperature for three weeks and since that time she had been running an irregular temperature. Parents said that for a day she would be apparently all right and the next day have a temperature. Sometimes temperatures were accompanied by a chilly feeling and at other times had high temperature, was thirsty and drowsy, but did not have chilly feeling. The week previous to her entrance she had been having rather high temperature and every other day had had a chill which lasted for thirty minutes to an hour. This was followed by a high temperature which lasted from twelve to eighteen hours and then became normal.

Physical Examination: On entrance the child had a pale, muddy complexion, flushed face and apathetic expression. She showed signs of having lost considerable amount of weight. Her tissue turgor was poor, her skin dry and the mucous membrane rather pale, though her cheeks were flushed. Her teeth were in poor condition and the gums rather spongy and bled rather easily. Tongue was coated and tonsils were enlarged, and there was a good deal of muco-purulent secretion in her posterior nasal pharynx. There were many superficial cervical glands, both anterior and posterior group. Glands in her axilla and groin were also palpable. Her chest was poorly clothed, breathing was not rapid, chest was resonant throughout, but in the back on auscultation there were numerous coarse rales on both sides. Heart area was slightly enlarged to the left. Heart sounds were clear, second sound was entirely replaced by a loud blowing, systolic murmur which had its greatest intensity at the apex. The veins over her chest and abdomen were distinctly visible. Abdomen was full and soft, not tender. The liver was enlarged to 6 cm. below the costal margin and was firm, hard and not tender. The spleen was felt 10cm. below the border of the ribs in the nipple line and reached to within 5 cm. of the mid line. It was hard, firm and not tender. There were no other masses felt in the abdomen. There was no fluid. Her genitalia were normal. Her extremities were normal except for a loss of subcutaneous fat. Her reflexes were rather sluggish. She had no abnormal reflexes.

Laboratory Findings: Von Pirquet reaction was negative. Wassermann on her blood was negative.

X-ray Examination: Her chest showed considerable peri-bronchial root gland enlargement and some peri-bronchial thickening. The blood picture showed a marked reduction in the hemoglobin and red blood cells with a relative increase in the polymorphonuclear leucocytes, though there was no increase in the number of white blood cells. On several occasions the white blood cells were below normal. Her differential blood counts ran as follows:

On examination of the smear, tertian malaria organisms were found in two stages, segmenting and segmented forms. This gave the

Diagnosis of the case, which was that of tertian malaria. Undoubtedly during the previous four months she had been suffering from this infection, which accounted for the large size of her liver and

Date	Hb. % Dare	Red Blood Cells	White Cells	Neutrophiles	Eosinophiles	Basophiles	Lymphocytes	Large Monos & Transition
Oct. 2	..	3,904,000	6,300	60	0	0	23	17
" 4	49	3,944,000	5,660	68	0	0	23	9
" 5	..	3,568,000	7,700	52	0	0	30	18
" 16	60	4,184,000	10,900	43	0	1	26	30
" 22	69	3,392,000	16,000	68	2	1	22	7

spleen. The anemia and leucopenia were in keeping with her malarial infection.

Treatment: Consisted of giving her quinine, five-grain powders four times a day. Within ten days her infection was under control and she had no more temperature rises. The quinine was then reduced to three times a day and on leaving the hospital, three weeks after admission, it was recommended that she keep up the quinine for one month longer, morning and evening. She was also put on iron, in the form of Blauds tablets, three times a day after meals for her anemia, and she was also given a full diet.

Discussion: Her general condition on discharge at the end of three weeks was markedly improved. Instead of being apathetic she was energetic. She had commenced to put on weight, having gained over two pounds. The sallow, muddy color was beginning to clear up and, as can be seen from her blood examination, her hemoglobin had risen to almost 70, an increase of almost 20 per cent. On discharge her liver could barely be felt and her spleen was reduced to 1 to 2 cm. below the costal margin.

Obituary

MEMORIAL TO DR. SHADWORTH O. BEASLEY, D. S. C., D. S. O. (British Government)

The Medical Faculty of the Stanford University School of Medicine has decided to create a Memorial to Assistant Professor Shadworth O. Beasley, who was killed in action on October 14, 1918, near Cierges, France.

Dr. Beasley was graduated from Cooper Medical College in 1897. He served as Major and Surgeon, U. S. Volunteers, in the Spanish-American War from 1898 to 1903, and received the Congressional Medal for conspicuous bravery in bringing in wounded under fire. Returning to San Francisco he undertook intensive work in the various clinics of Cooper Medical College, which later were taken over by Stanford University, in order to give himself a broad foundation for the practice of general surgery.

At the time the recent World War broke out he was acting as Urologist in the Women's Clinic of Stanford University with the title of Assistant Clinical Professor. He served in Serbia under the American Red Cross and was with his unit in the Serbian Hospital at Belgrade during the bombardment of that city by the Austrians.

When the United States entered the war Dr. Beasley joined the Eighteenth Railway Engineers with the rank of Major, and reached France September 1, 1917. Later he was with the Seventy-sixth Field Artillery and was in action most of the time. He was highly commended in the report of General William P. Rivers and was awarded the Distinguished Service Cross for extraordinary heroism in action near Petit Bordeau Woods, France, July 14-16, 1918. Major Beasley was killed in action October 14, 1918, about 8 a. m. on Hill 253, about two kilometers northwest of Cierges, France, and was buried by a detail of the Seventy-sixth Field Artillery on this same hill.

The responses received for a memorial plate to Dr. Beasley, which has been placed in the Lane Medical Library, have been greater than necessary and a balance in this memorial fund remains. Feeling that Dr. Beasley is so widely revered for his heroic work and so beloved by his many old patients and friends, as well as admired by the medical profession of California, as representing the highest type of physician and surgeon, the Medical Faculty of the Stanford School of Medicine has decided to solicit funds for the creation of a Beasley Memorial Fellowship. It is hoped that this fund will ultimately be something in the neighborhood of $25,000. Something over $1,000 has already been promised.

DR. SHADWORTH BEASLEY

Contributors may send contributions to the Dean of the Stanford University School of Medicine, who will acknowledge the same and transmit the sums received to the Board of Trustees of the University, who will expend the interest on the fund according to recommendations received from the Medical Faculty.

ALFRED BAKER SPALDING
Chairman of Committee.

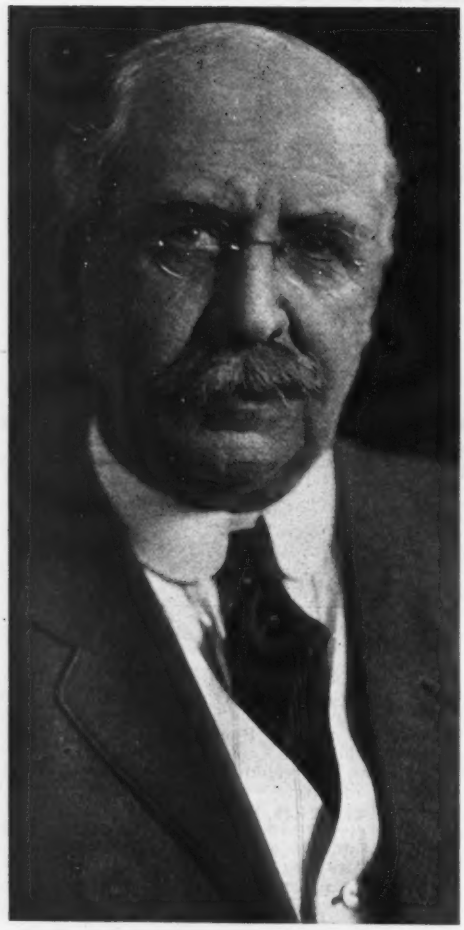
WILLIAM BREAKEY LEWITT
San Francisco

On April 25 San Francisco lost one of its most beloved physicians, Dr. William Breakey Lewitt. Doctor Lewitt had long served the community in unselfish devotion to his profession and all sorts and conditions of men, women and children mourn his loss.

Doctor Lewitt was born in Ann Arbor, Michigan, December 12, 1857, the son of Dr. William and Adelaide Lewitt. His early education was received there and in Detroit, where in 1877 he graduated from the Detroit Medical College. A year later, in 1878, he took a further degree from the Medical Department of Columbia University. The same year he married Susan E. Smith of Saginaw, Michigan, and in August of that year he moved to San Francisco to begin his life work.

From the first Doctor Lewitt was interested in the teaching side of his profession and his first work in San Francisco was as Demonstrator of Anatomy in Toland Medical College. Later he became Professor of Anatomy in the same school. Doctor Lewitt was a man of vision and of energy, and new fields of work always had his interest and his help. When the Dental College of the University of California was started he was appointed to the position of Professor of Anatomy, which he held up to 1905.

Doctor Lewitt's interest in the diseases of children and the claims of childhood on the medical profession, as a special department worthy of the most intense effort of the physician, made him the Father of Pediatrics on this Coast, and in 1896 he became the Professor of Pediatrics in the Univer-



WILLIAM BREAKEY LEWITT

sity of California Medical School. From that time until 1913, when he retired as Professor Emeritus, he held that professorship and stimulated study and research in the subject of the diseases of children.

Doctor Lewitt's contributions to medical literature were of a sound, progressive character, always scholarly and stimulating to students and physicians alike. He was a member of the Nu Sigma Medical Fraternity and of the Alpha Omega Alpha Medical Honor Society.

Doctor Lewitt was a man of great personal magnetism, a man loved and trusted by men and one whose passing leaves "an empty space against the sky." He leaves a widow and son and daughter, for whom the whole medical profession and Doctor Lewitt's many friends and admirers will always have a feeling of the deepest sympathy in their bereavement. He will always be remembered as a man who grew with the advancements in his profession and was a leader whom the medical profession in California honored and respected.

New Members

Hall, J. Howard, Sacramento; Haake, C. H. G., Kennett; Shoemaker, H. R. D., Lindsay; Briggs, W. R., Sacramento; De Laney, C. O., Sacramento; Smith, H. McVickar, Santa Ana; Yeagle, Roland P., Santa Ana; Donaldson, A. D., Loma Linda; Hill, A. J., Riverside; Morrison, H. E., Banning; Landon, G. S., San Bernardino; Connell, J. A., San Bernardino; Campbell, C. R., Loma Linda; Beeson, H. O., San Bernardino; Hill, M. W., Redlands; Fiegel, F. X., San Bernardino; Gage, A. T., Redlands; Francis, Raymond T., Oxnard; Barbour, N. P., Stockton; Bulpitt, J. Muncey, Modesto; Nightingale-Bulpitt, E. Z., Modesto; Wolfsen, L. H., Modesto; Hensel, L. M., Modesto; Dahleen, H. E., San Jose; Parien, R. H., Gilroy; Pierson, Frederick H., San Jose; Gelder, Edgar E., Los Angeles; Straub, Paul F., Los Angeles; Goodenow, Norman H., Sierra Madre; Smith, W. Burr, Los Angeles; Seaver, Homer C., Los Angeles; Malkin, George M., Los Angeles; Hara, H. J. H., Moneta; Rapaport, Hyman, Los Angeles; Gaulden, Lewis, Los Angeles; Sutton, Irwin C., Los Angeles; Johnson, Elmer H., Los Angeles; Bachhuber, C. A., Los Angeles; Bennett, Edwin S., Los Angeles; Hoskins, Greg, Long Beach; Dean, James R., Los Angeles; Mellman, Clarence, Los Angeles; Grubbs, Robert B., Santa Monica; Chamberlain, Frank C., Los Angeles; Tower, I. O., Los Angeles; Ott, Clarence T., Whittier; Parizek, Frank J., Los Angeles; Jones, David N., Long Beach; Exelby, P. B., Los Angeles; Ames, E. W., Los Angeles; Sasso, John A., Los Angeles; Applegate, Chas. F., Norwalk; Napheys, Wm. D., Los Angeles; Williams, P. M., Los Angeles; Force, O. O., Monrovia; Bulpitt, Frederick, Los Angeles; Smith, Gerald F., Los Angeles; Ayres, Samuel, Los Angeles; Denton, William L., Randsburg; Bowman, Paul J., Fort Bragg; Scudder, Royal, Fort Bragg; Avey, John L., Los Angeles; Beck, Horace R., Los Angeles; Davenport, J. Dryden, Los Angeles; Doane, Philip S., Los Angeles; Desser, A. Lincoln, Los Angeles; Fehrensen, Gail, Inglewood; Foote, Charles G., Long Beach; Guidinger, W. R., Long Beach; Heffelfinger, M. A., Los Angeles; Holman, W. Frank, Los Angeles; Ingham, Samuel D., Los Angeles; Kaplan, Max, Los Angeles; Koebig, Walter C., Los Angeles; Lijedahl, E. N., Los Angeles; Mann, H. H., Los Angeles; Merritt, Robert E., Los Angeles; Nichols, J. Norton, Los Angeles; Opp, Paul A., Los Angeles; Norris, Wm. J., Los Angeles; Symonds, Cleon W., Pasadena; Travis, Hartman P., Los Angeles; Van Meter, J. N., Burbank; Warner, Horace E., Los Angeles; Franklin, Blake, Los Gatos; Davis, A. F., Soquel; Weir, John J., Loma Linda; Callanan, Joseph I., San Francisco; Cook, Orrin S., San Francisco; Gottschalk, Adolph, San Francisco; Hobdy, W. C., San Francisco; Horner, Warren D., San Francisco.

Transferred

Osburn, Priestley, P., from Orange County to San Diego County; Trimble, Harold G., from Placer County to Alameda County; Gray, Roscoe N., from San Joaquin County to Alameda County; Wayland, Clyde, from Santa Cruz County to Santa Clara County.

Deaths

BECKH, G. C.—Died in San Francisco, April 21, 1921, of chronic mitral regurgitation. Age 64.

ANDERSON, PAUL J.—Died April 25, 1921. Was a graduate of Cooper Medical College, San Francisco, 1910. Was a member of the Medical Society, State of California.

SUNBURNT, WALTER I.—Died in San Francisco, April 10, 1921. Was a graduate of the College of Physicians & Surgeons, San Francisco, 1899. Licensed in California, 1899. Age 55. Influenza broncho pneumonia cause of death.

LEWITT, WM. B.—Died in San Francisco, April 25, 1921, from chronic myocarditis. Age 63. Was a member of the Medical Society, State of California.